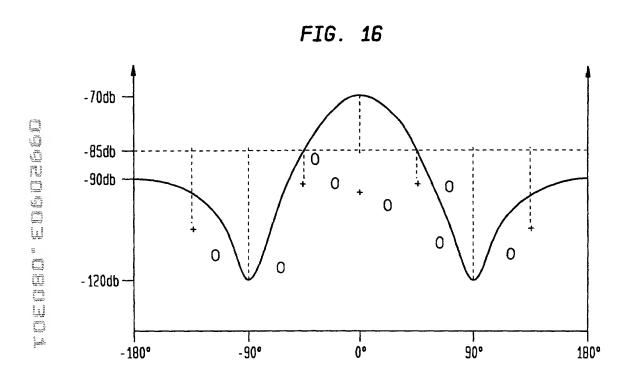


The state of the s



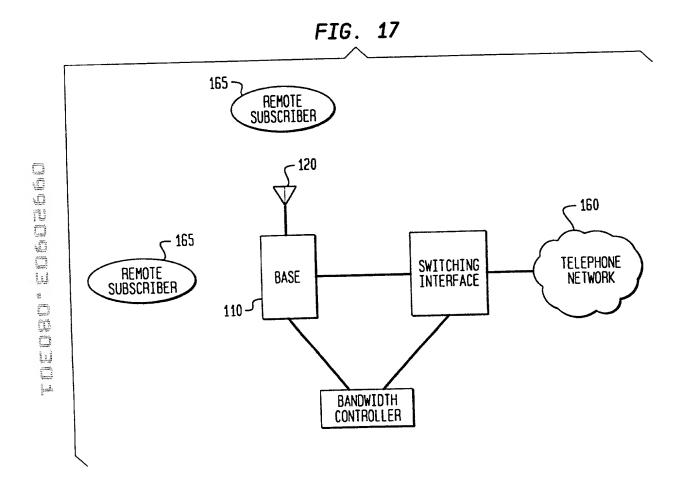


FIG. 18

BASE FREQUENCY	LOWER RF BAND	UPPER RF BAND
1850 MHz	1850-1855 MHz	1930-1935 MHz
1855 MHz	1855-1860 MHz	1935-1940 MHz
1860 MHz	1960-1965 MHz	1940-1945 MHz
1865 MHz	1865-1870 MHz	1945-1950 MHz
1870 MHz	1870-1875 MHz	1950-1955 MHz
1875 MHz	1875-1880 MHz	1955-1960 MHz
1880 MHz	1880-1885 MHz	1960-1965 MHz
1885 MHz	1885-1890 MHz	1965-1970 MHz
1890 MHz	1890-1895 MHz	1970-1975 MHz
1895 MHz	1895-1900 MHz	1975-1980 MHz
1900 MHz	1900-1905 MHz	1980-1985 MHz
1905 MHz	1905-1910 MHz	1985-1990 MHz

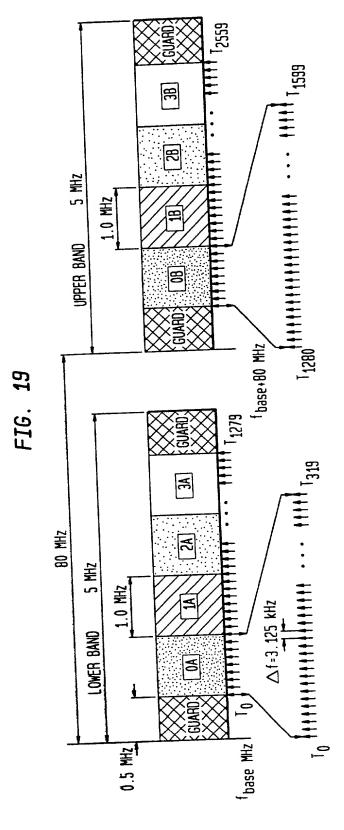


FIG. 20

SUBBAND PAIR DE	SIGNATION	TONES
CHOOMIN DATE A	0 A	{T <sub>0</sub> ,T <sub>1</sub> ,, T <sub>319</sub> }
SUBBAND PAIR 0	0 B	$\{T_{1280}, T_{1281}, \dots, T_{1599}\}$
SUBBAND PAIR 1	1 A	{T320,T321,, T639}
2000AND PAIR I	1 B	$\{T_{1600}, T_{1601}, \dots, T_{1919}\}$
SUBBAND PAIR 2	2 A	{T640,T641,, T959}
2000AND LATH S	2 B	{T <sub>1920</sub> ,T <sub>1921</sub> ,,T <sub>2239</sub> }
SUBBAND PAIR 3	3 A	{Tg60.Tg61T <sub>1279</sub> }
SUDDANU PAIN 3	3 B	{T2240.T2241T255g}

FIG. 21

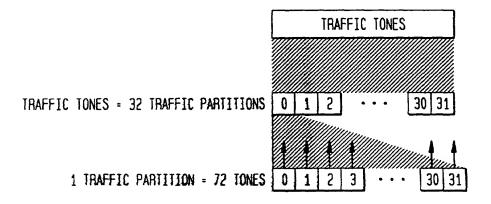


FIG. 22

TONE INDEX	TONE	TONE INDEX	TONE	TONE INDEX	TONE	TONE INDEX	TONE
P <sub>1</sub> (0)	T <sub>20i+1</sub>	P <sub>i</sub> (18)	T 20i+161	P <sub>1</sub> (36)	T 20i+1281	P <sub>i</sub> (54)	<sup>T</sup> 20i+1441
P <sub>1</sub> (1)	T <sub>20i+2</sub>	P <sub>i</sub> (19)	T 20i+162	P <sub>i</sub> (37)	T 201+1282	P <sub>i</sub> (55)	T 20i+1442
P <sub>1</sub> (2)	T20i+3	P <sub>1</sub> (20)	T 20i+163	P <sub>1</sub> (38)	T 20i+1283	P <sub>i</sub> (56)	T 20i+1443
P <sub>1</sub> (3)	T <sub>20i+4</sub>	P <sub>i</sub> (21)	T 20i+164	P <sub>i</sub> (39)	<sup>T</sup> 20i+1284	P <sub>i</sub> (57)	T 20i+1444
P <sub>1</sub> (4)	T <sub>201+5</sub>	P i (22)	T 20i+165	P <sub>1</sub> (40)	T 20i+1285	P <sub>i</sub> (58)	<sup>T</sup> 20i + 1445
P <sub>1</sub> (5)	T <sub>20i+6</sub>	P <sub>i</sub> (23)	<sup>T</sup> 20i+166	P <sub>1</sub> (41)	T 20i+1286	P <sub>i</sub> (59)	T 20i+1446
P <sub>1</sub> (6)	T <sub>20i+7</sub>	P <sub>1</sub> (24)	T 20i+167	P <sub>1</sub> (42)	<sup>T</sup> 20i+1287	P <sub>i</sub> (60)	T 20i+1447
P <sub>1</sub> (7)	T <sub>201+8</sub>	P <sub>i</sub> (25)	T 20i+168	P <sub>i</sub> (43)	T 201+1288	P <sub>i</sub> (61)	T 20i+1448
P <sub>1</sub> (8)	T <sub>201+9</sub>	P <sub>1</sub> (26)	T 20i+169	P <sub>1</sub> (44)	T 20i+1289	P <sub>i</sub> (62)	<sup>T</sup> 20i+1449
P <sub>1</sub> (9)	T20i+11	P <sub>i</sub> (27)	T 20i+171	P <sub>1</sub> (45)	T 20i+1291	P <sub>i</sub> (63)	T 20i+1451
P <sub>1</sub> (10)	T20i+12	P <sub>i</sub> (28)	T 20i+172	P <sub>1</sub> (46)	T 20i+1292	P <sub>1</sub> (64)	T 20i+1452
P <sub>1</sub> (11)	T <sub>20i+13</sub>	P <sub>1</sub> (29)	T 20i+173	P <sub>1</sub> (47)	T 20i+1293	P <sub>1</sub> (65)	T 20i+1453
P <sub>1</sub> (12)	T <sub>201+14</sub>	P <sub>i</sub> (30)	T 20i+174	P <sub>1</sub> (48)	T 20i + 1294	P <sub>i</sub> (66)	T 20i+1454
P <sub>i</sub> (13)	T <sub>20i+15</sub>	P <sub>i</sub> (31)	T 20i+175	P <sub>1</sub> (49)	T 20i+1295		T 20i+1455
P <sub>1</sub> (14)	T20i+16	P <sub>i</sub> (32)	T 20i+176	P <sub>i</sub> (50)	T 20i+1296	<del></del>	T 20i+1456
P <sub>i</sub> (15)	<sup>7</sup> 20i+17	P <sub>1</sub> (33)	T 20i+177	P <sub>1</sub> (51)	T 20i+1297		T 20i+1457
P <sub>i</sub> (16)	T <sub>20i+18</sub>	P <sub>1</sub> (34)	T 20i+178	P <sub>i</sub> (52)	T 20i+1298		T 20i+1458
P <sub>i</sub> (17)	T <sub>20i+19</sub>	P <sub>i</sub> (35)	T 20i+179	P <sub>i</sub> (53)	T 201+1299	P <sub>i</sub> (71)	T 20i+1459

FIG. 23

	TONES AL	LOCATED	TO CLC/CAC IN	SUBBAND	PAIR i (CLC	i/CAC i .01	<del></del>	
INDEX	TONE INDEX		TONE	INDEX	TONE	INDEX	TONE	
0	<sup>T</sup> 320 i	1	T 320i+20	2	T 320i+40	3	T 320i+60	
4	<sup>T</sup> 320i + 160	5	<sup>T</sup> 320i+180	6	<sup>T</sup> 320i+200	7	T 320i+220	
8	<sup>T</sup> 320i+1280	9	<sup>7</sup> 320i + 1300	10	<sup>T</sup> 320i + 1320	11	T 320i+1340	
12	<sup>T</sup> 320i + 1440	13	<sup>T</sup> 320i+1460	14	T 320i+1480	15	<sup>T</sup> 320i + 1500	
	TONES AL	LOCATED	TO BRC/CAC IN	SUBBAND	PAIR i (BRC	i/CAC <sub>i,9</sub> )		
INDEX	TONE	INDEX	TONE	INDEX	TONE	INDEX	TONE	
0	<sup>T</sup> 320i+90	1	T 320i+110	5	T 320i+130	3	T 320i+150	
4	<sup>T</sup> 320i+250	5	T 320i+270	6	T 320i+290	7	T 320i+310	
8	<sup>T</sup> 320i + 1370	9	<sup>T</sup> 320i + 1390	10	<sup>T</sup> 320i+1410	11	T 320i+1430	
12	<sup>T</sup> 320i <b>• 1530</b>	13	<sup>7</sup> 320i + 1550	14	0001.10.0		T 320i+1590	
	TONES A	LLOCATED	TO RSC/DCC I	n Subbani	PAIR i (RSC	i/DCC i)		
INDEX	TONE	INDEX	TONE	INDEX	TONE	INDEX	TONE	
0	<sup>T</sup> 320i+10	1	T 320i+20	5	T 320i+50	3	T 320i+70	
4	T 320i+80	5	T 320i+100	8	T 320i+120	7	T 320i+140	
8	<sup>7</sup> 320i+170	9	<sup>T</sup> 320i+190	10	T 320i+210	11	T 320i+230	
12	<sup>T</sup> 320i+240	13	<sup>T</sup> 320i+260	14	T 320i+280	15	T 320i+300	
16	<sup>T</sup> 320i + 1290	17	<sup>T</sup> 320 i + 1310	18	T 320i +1330	19	T 320i+1350	
20	<sup>7</sup> 320i+1360	21	<sup>T</sup> 320 i + 1380	55	T 320i+1400	23	T 320i+1420	
24	<sup>T</sup> 320i + 1450	25	<sup>T</sup> 320i+1470	26	T 320i+1490	27	T 320i+1510	
28	<sup>T</sup> 320 i + <b>1520</b>	29	T 320i+1540	30	<sup>T</sup> 320i + 1560	31	T 320i+1580	

TONE SPACE (2560 TONES) 640 640 640 640 TRAFFIC 576 Po TO P7 P8 T0 P15 P<sub>16</sub>TO P<sub>23</sub> P<sub>24</sub>TO P<sub>31</sub> OVERHEAD ; CLC<sub>0</sub>/CAC<sub>0,0</sub> CLC<sub>1</sub>/CAC<sub>1.0</sub> CLC2/CAC2.0 CLC3/CAC3.0 RSC 0/DCC 0 RSC<sub>2</sub>/DCC<sub>2</sub> ASC 3/DCC 3 RSC 1/DCC 1 BRC 0/CAC 0.1 BRC 1/CAC 1.1 BRC2/CAC2.1 BRC3/CAC3.1 SUBBAND PAIR 0 SUBBAND PAIR 1 SUBBAND PAIR 2 SUBBAND PAIR 3

FIG. 24

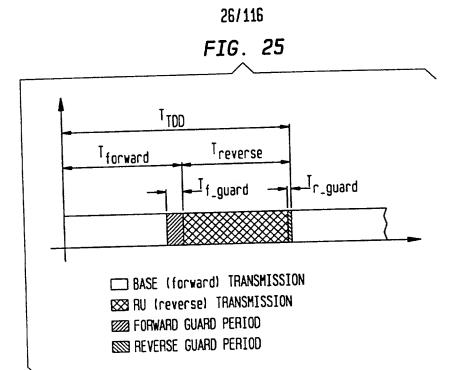


FIG. 27

TDD PARAMETER	VALUE (us)
Tforward	1610
Treverse	1390
↑ f_guard	255
T <sub>r_guard</sub>	35
Trevisit	3000
T burst	320
T <sub>b_guard</sub>	25

FIG. 28

SUPERFRAME = 32 FRAMES 0 1 2 3 4 · · · 29 30 31 1536 ms

FRAME = 8 SUBFRAMES 0 1 2 3 4 5 6 7 48 ms

SUBFRAME = 2 TOD PERIODS 0 1 6 ms

TOD PERIOD

 $3\ \mathrm{ms}$ 

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FIG. 29

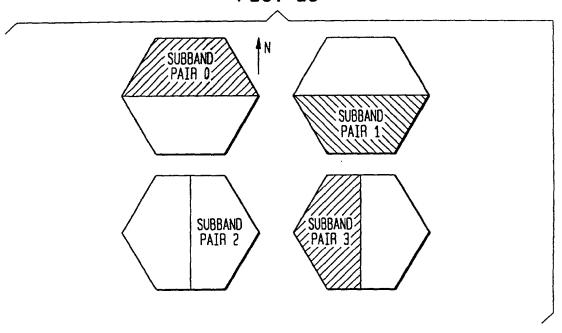
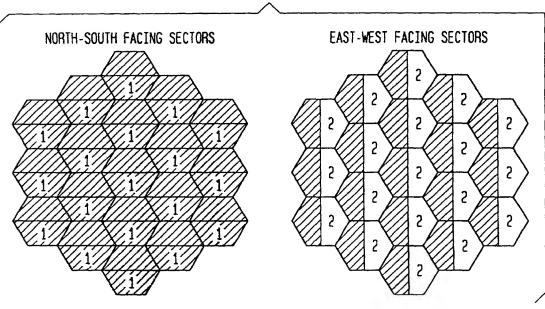


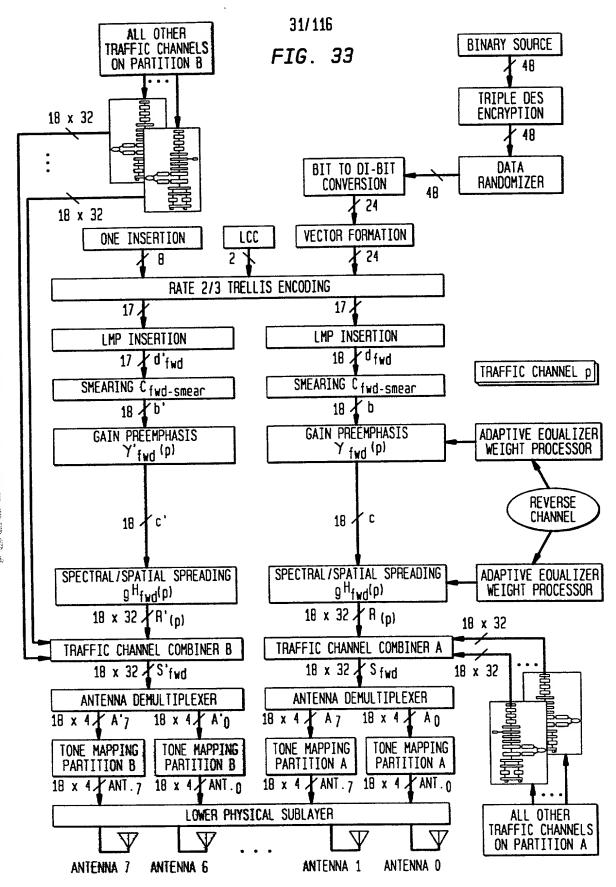
FIG. 30



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FIG. 32

										$\sim$						_							-						
	0 1	2 3	4 5	6 7	8 9	10	11 12	13 1	1 15	6 17	18	19 20	21 2	2 23	24	25 2	27	28 2	9 30	313	2 33	34 35	36 37	38	39	40 4:	12	3 44	45 46 47
							Ī	RIP	LE O	ES	EN	CRYP	TI	NC														<u>BIN</u>	NARY
	0 1	2 3	4 5	6 7	8 9	10	11 1	13 1	1 15	16 17	18	19 20	21 2	2 23	3 24	25 2	6 27	28 2	29 30	31 3	2 33	34 35	36 37	38	39	40 4	12	3 44	45 46 47
								D	ATA	RAI	OOV	MIZE	R															BIN	<u>VARY</u>
	0 1	2 3	4 5	6 7	8 5	10	11 1	2 13 1	4 15	16 1	18	19 20	21 2	2 23	3 24	25 2	6 27	28 2	29 30	31 3	2 33	34 35	36 37	38	39	40 4	12	13 44	45 46 47
							BI	1 10	SY	MBC	)L (	ONV	ERS	310	N													BI	NARY
[	0	1	5	3	4	5	[		1	8	9	10	11		12	13	14	(	15				0-7	<u> </u>	NT	EGE	R A	LPH/	<u>ABET</u>
								L	cc s	YME	30L	ADD	ED																
[	0	1	2	3	4	5	] {		1	8	9	10	11		12	13	1	1	15	16	]		<u>0-7</u>	7 ]	INT	EGE	R A	LPH/	<u>ABET</u>
								TF	RELL	IS	EN	CODI	NG																
	0	1	2	3	4	5	(		1	0	9	10	1	1	12	13	1	1	15	16									
									IIIII TS	YMB	//// OL /////	ENC	/// 00I	NG						160	AM	(16	PSK)	) (	100	PLE	X A	LPH	<u>ABET</u>
	0	1	2	3	1	5		5	1	8	9	10	1	1	12	13	1	4	15	16	17								
									S	ME	ARI.	NG								160	MAC	(16	PSK)	) (	<u> </u>	IPLE	<u>X</u> /	LPH	ABET
	0	1	2	3	4	5		6		ME/	ARI 9	VG 10	1	1	12	13	1	4	15	160 16			PSK)	} (	<u> </u>	<u>IPLE</u>	X A		<u>ABET</u> PLEX
	0	1	2	3	4	5			7	8	9			1	12	13	1	4	15				PSK)	) (	<u> 100</u>	<u>IPLE</u>	X P		
	0	1	5	3	4	5		G	7	8	9	10	SIS		12	<del> </del>		4		16			PSK	} (	100	<u>IPLE</u>	<u>X</u>	COMI	
		1	5	3	4	5	j	G/ 6	7   AIN 7	PRI B	9 EEM	10 PHAS	SIS	i	12	13	1 1	14	15	16	10		(PSK)	} (	CON	<u>IPLE</u>	X A	COMI	PLEX
	0		? PECT	3 RAL	4 AND	SF	PATI	G/ 6 AL	7   AIN 7   SPRE	PRI B	9 EEM	10 PHAS	SIS	i	12	13	IEL	(4) CO	15 MB I	16 16 NIN	17		PSK)	) (	<u>CO1</u>	<u>IPLE</u>	<u>X</u>	COMI	PLEX
		1 1 SF 18 19	5	3	AND	5	j	G/ 6	7   AIN 7   SPRE   54   55	PRI B	9 EEM	10 PHAS	SIS	i	12	13	IEL	CO 0 1	15 MB I 18	16 16 NIN 36 37	11/2 GG S5-		<u>PSK1</u>	)(	CON	<u>IPLE</u>	<u>X</u>	COMI	PLEX
	0 1 2	18 19 20	2 PECT 36 37 38	3 RAL 54 55 56	AND	SF   O   1   2	PATI 18 19 20	G/ 6   AL 36 37 38	7   AIN 7   SPRE   54   55   56	PRI B	9 EEM	10 PHAS	SIS	i	12	13	IEL	CO 0 1 2	15 MBI 18 19 20	16 NIN 36 37 38	11/2 G S S S S S S S	7	<u>PSK)</u>	}(	<u>CO1</u>	<u>IPLE</u>	<u>X</u> /	COMI	PLEX
	0 1	18 19	2 PECT 36 37	3 RAL 54 55	AND	5   SF   0   1	PATI 18 19	G/ 6   AL 36 37	7   AIN 7   SPRE   54   55	PRI B	9 EEM	10 PHAS	SIS	i	12	13	IEL	CO 0 1	15 MB I 18	16 16 NIN 36 37	117 G 5- 5- 5-	7	<u>PSK)</u>	}	COM	<u>IPLE</u>	<u> </u>	COM	PLEX
	0 1 2 3 : :	18 19 20 21	2   36   37   38   39   :	3 RAL 54 55 55 56 57	AND	SF 0 1 2 3 3 ::	PATI 18 19 20 21	G. AL 36 37 38 39 39	7   AIN 7   SPRE   54   55   56   57	PRI	9 EEM	10 PHAS	SIS	i	12	13		CO 0 1 2 3 3	15 MBI 18 19 20 21	16 NIN 36 37 38 39	17 G 5: 5: 5:	7	<u>PSK</u> )	) (	COM	<u>IPLE</u>	X /	COM	PLEX
	0 1 2 3	18 19 20 21 :	2   36   37   38   39   52	3   S4   55   56   57   70		SF 0 1 2 3 ::	PATI 18 19 20	G/ 6   AL 36 37 38	7   AIN 7   SPRE   54   55   56   57	PRI	9 EEM	10 PHAS	SIS	i	12	13		CO 0 1 2	15 MBI 18 19 20	16 NIN 36 37 38	17   17   17   17   17   17   17   17	7 1 5 6 7 7	<u>PSK</u>	) (	100	<u>IPLE</u>	<u> </u>	COM	PLEX
	0 1 2 3 : :	18 19 20 21 :	2   36   37   38   39   52   53	3   S4   55   56   57   70		SF 0 1 2 3 3 ::	PATI 18 19 20 21 34 35	G. AL 36 37 38 39 52 53	7   AIN 7   SPRE   54   55   56   57	PRI	9 EEM	10 PHAS	SIS	i	12	13		CO 0 1 2 3 3 16	15 MBI 18 19 20 21 :	16 NIN 36 37 38 39 52 53	17   17   17   5	7 1 5 6 7 7	<u>PSK</u> )	) (	<u>CO1</u>	<u>IPLE</u>	<u> </u>	COM	PLEX
	0 1 2 3	18 19 20 21 : : 34 35	2   36   37   38   39   52	3   S4   55   56   57   70   71		SF 0 1 2 3 :: 16 17	PATI 18 19 20 21 34 35	G. AL 36 37 38 39 52	7   AIN 7   SPRE   54   55   56   57   70   71	PRI	9 EEM	10 PHAS	SIS	i	12	13		CO 0 1 2 3 3 16 17	15 MBI 18 19 20 21 :	16 NIN 36 37 38 39	17   17   17   17   17   17   17   17	7 1 5 6 7 7	<u>PSK</u> )	} (	COP	<u>IPLE</u>	<u> </u>	COM	PLEX



ANTENNA 6

ANTENNA 7

ANTENNA O

ANTENNA 1

FIG. 36 34/116

710. 33		
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	3637 38 39 40 41 42 43 44 45 46 47	BINARY
TRIPLE DES ENCRYPT	TION/RANDOMIZATION	
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	36 37 38 39 40 41 42 43 44 45 46 47	BINARY
LCC SYMBOL	INSERTION	
0 1 2 13 14 15 16 17 18 2	29 30 31 32 33 34 45 46 47 48 49 50	BINARY
TRELLIS	ENCODING	
0 1 2 14 15 16 17 18 19 3	11 32 33 34 35 36 48 49 50	
PILOT SYMBOL	INSERTION OPSK COMPLEX	<u>ALPHABET</u>
0 1 2 14 15 16 17 0 1 2	11 15 16 17 0 1 2 3 15 16 17	
	OPSK COMPLEX	AI PHARFT
SMEARING SMEA		iet (ii.oe.)
0 1 2 11 15 16 17 0 1 2	H   15   16   17   0   1   2   3   · · ·   15   16   17	COMPLEX
GAIN PREEMPHASIS GAIN PRE	EMPHASIS GAIN PREEMPHASIS	
01122 · · · [H] 151 16 17 0 1 2 · · ·	H   15   16   17   00   1   2   3   · · ·	COMPLEX
SPREADING/COMBINING SPREADING/	COMBINING SPREADING/COMBINING	
0 18 36 54 0 18 36 54	0 18 36 54 0 18 36 54	
1 19 37 55 1 19 37 55	1 19 37 55 1 19 37 55	
16 34 52 70 16 34 52 70		ITION A
16     34     52     70     16     34     52     70        17     35     53     71     17     35     53     71	16     34     52     70     16     34     52     70       17     35     53     71     17     35     53     71	
0         18         36         54         0         18         36         54            1         19         37         55         1         19         37         55	0 18 36 54 0 18 36 54	
	1 19 37 55 1 19 37 55 PART	ITION B
16 34 52 70 16 34 52 70 · · ·	16 34 52 70 16 34 52 70	TITOM D
17 35 53 71 17 35 53 71	17 35 53 71 17 35 53 71	
0 18 36 54 0 18 36 54 1 19 37 55 1 19 37 55 - •	0         18         36         54         0         18         36         54           1         19         37         55         1         19         37         55	
		ITION C
16 34 52 70 16 34 52 70 · · ·	16 34 52 70 16 34 52 70	
17 35 53 71 17 35 53 71	17 35 53 71 17 35 53 71	
A 0 A 1 ANTENNA 0 ANTENNA 1	A A A 7 ANTENNA 6 ANTENNA 7	

FIG. 37

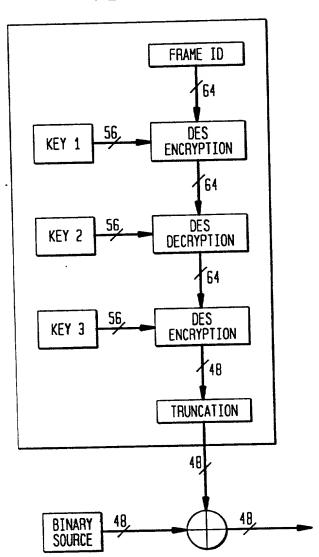


FIG. 38

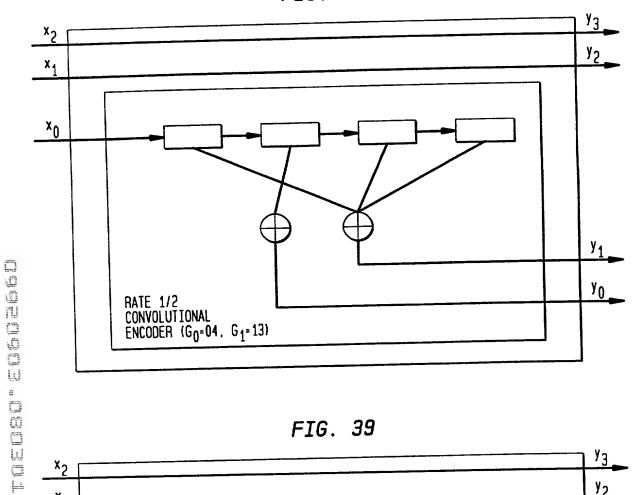
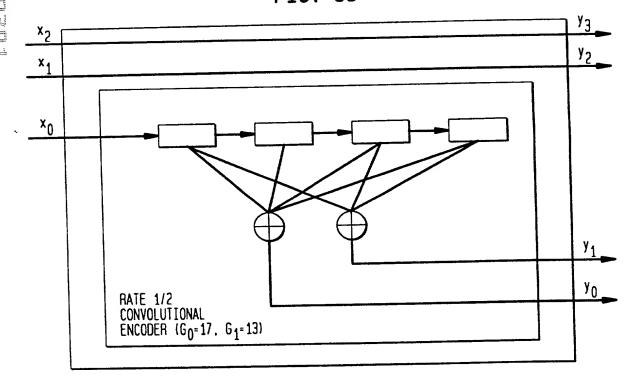


FIG. 39



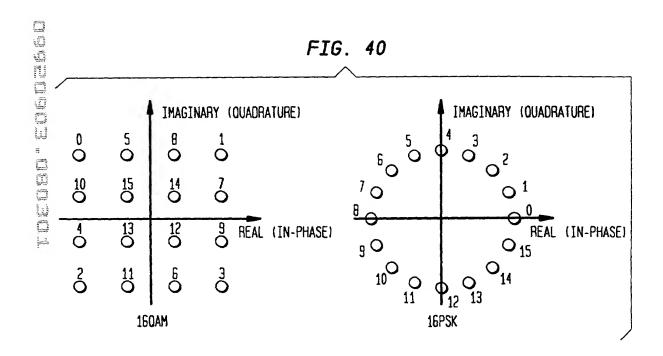
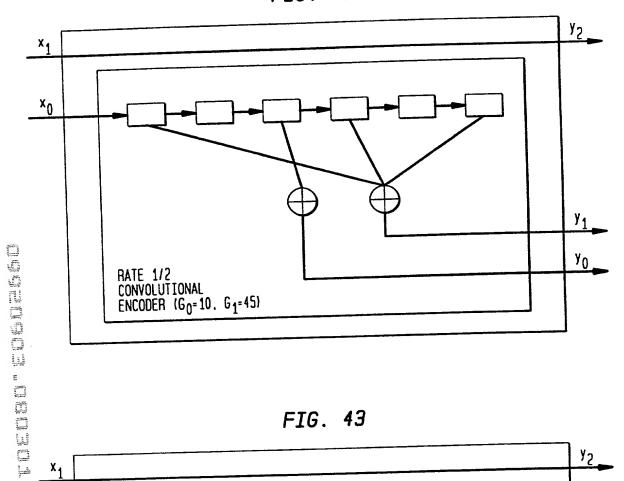


FIG. 41

OUTPUT		OUTPUT	BITS		SIGNAL MAPF	ING (150AM)	SIGNAL MAPF	ING (16PSK)	
SYMBOL	у <sub>3</sub>	y <sub>2</sub>	<sup>y</sup> 1	y <sub>0</sub>	IN PHASE	QUADRATURE	IN PHASE	OUADRATURE	
0	0	0	0	0	-3/√10	$3/\sqrt{10}$	1.0	0.0	
1	0	0	0	1	3/√10	$3/\sqrt{10}$	0.924	0.383	
2	0	0	1	0	-3/√ <del>10</del>	-3/√10	0.707	0.707	
3	0	0	1	1	3/√10	$-3/\sqrt{10}$	0.383	0.924	
4	0	1	0	0	-3/√10	-1/√10	0	1	
5	0	1	0	1	$-1/\sqrt{10}$	$3/\sqrt{10}$	-0.383	0.924	
6	0	1	1	0	$1/\sqrt{10}$	$-3/\sqrt{10}$	-0.707	0.707	
7	0	1	1	1	$3/\sqrt{10}$	1/√10	-0.924	0.383	
8	1	0	0	0	1/√10	$3/\sqrt{10}$	-1.0	0.0	
9	1	0	0	1	$3/\sqrt{10}$	$-1/\sqrt{10}$	-0.924	-0.383	
10	1	0	1	0	$-3/\sqrt{10}$	$1/\sqrt{10}$	-0.707	-0.707	
11	1	0	1	1	$-1/\sqrt{10}$	$-3/\sqrt{10}$	-0.383	-0.924	
12	1	1	0	0	$1/\sqrt{10}$	$-1/\sqrt{10}$	0	-1	
13	1	1	0	1	$-1/\sqrt{10}$	$-1/\sqrt{10}$	0.383	-0.924	
14	1	1	1	0	1/√10	$1/\sqrt{10}$	0.707	-0.707	
15	1	1	1	1	$-1/\sqrt{10}$	$1/\sqrt{10}$	0.924	-0.383	

FIG. 42



yγ x<sub>1</sub> **x**0 y<sub>1</sub> y<sub>0</sub>\_ RATE 1/2 CONVOLUTIONAL ENCODER (G<sub>0</sub>=53. G<sub>1</sub>=75)

FIG. 44

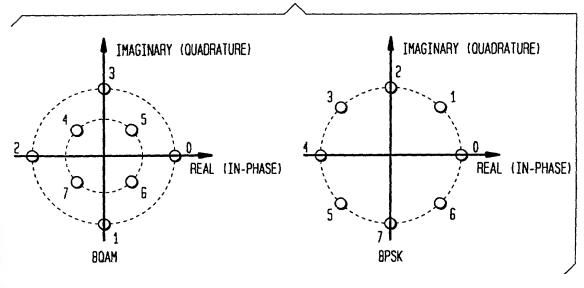


FIG. 45

OUTPUT	OU	TPUT B	ITS	SIGNAL MAP	PING (80AM)	SIGNAL MAPPING (BPSK)			
SYMBOL	y <sub>2</sub>	y <sub>1</sub>	y <sub>0</sub>	IN PHASE	QUADRATURE	IN PHASE	QUADRATURE		
0	0	0	0	1.21	0	1	0		
1	0	0	1	0	-1.21	1/√2	1/√2		
5	0	1	0	-1.21	0	0	1		
3	0	1	1	0	1.21	-1√2	1/√2		
4	1	0	0	-0.518	0.518	-1	0		
5	1	0	1	0.518	0.518	-1/√2	-1√2		
6	1	1	0	-0.518	-0.518	0	-1		
7	1	1	1	-0.518	-0.518	1/√2	-1√2		

FIG. 46

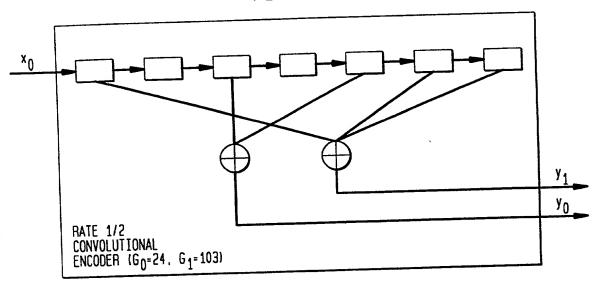


FIG. 47

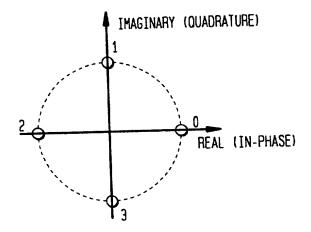


FIG. 48

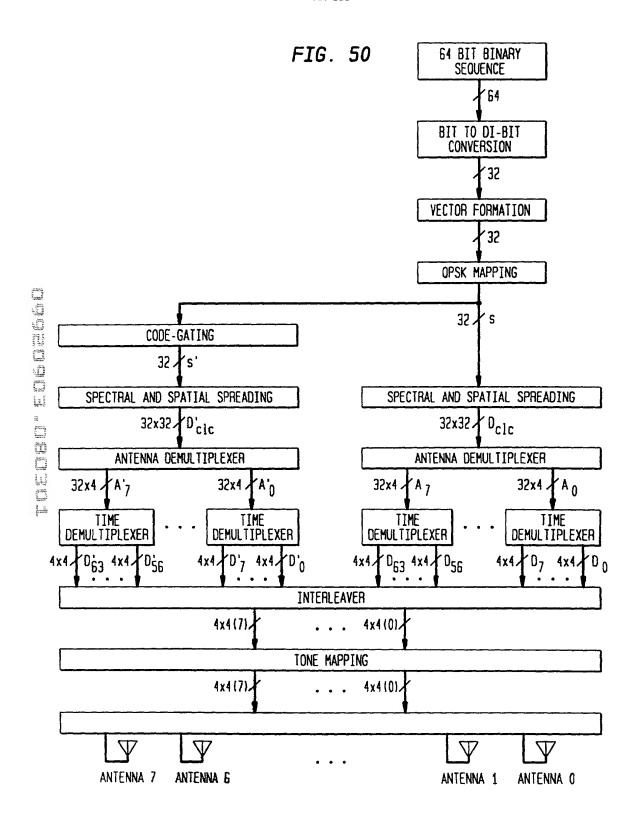
OUTPU	T BITS	SIGNAL MAPPING					
y <sub>1</sub>	y <sub>0</sub>	IN PHASE	OUADRATURE				
0	0	1	0				
0	1	0	1				
1	0	-1	0				
1	1	0	-1				
	0UTPU y 1 0 1 1	OUTPUT BITS    y	0011 01 0210				

W 0 — (ANTENNA ELEMENT O. TONE O)
W 1 — (ANTENNA ELEMENT O. TONE 1)
W 2 — (ANTENNA ELEMENT O. TONE 2)
W 3 — (ANTENNA ELEMENT O. TONE 3)
W 4 — (ANTENNA ELEMENT 1. TONE 0)
W 5 — (ANTENNA ELEMENT 1. TONE 1)
W 6 — (ANTENNA ELEMENT 1. TONE 2)
W 7 — (ANTENNA ELEMENT 1. TONE 3)

W 28 — (ANTENNA ELEMENT 7. TONE 0)
W 29 — (ANTENNA ELEMENT 7. TONE 1)

W 29 (ANTENNA ELEMENT 7. TONE 2)

w 31 — (ANTENNA ELEMENT 7, TONE 3)



IMAGINARY (QUADRATURE)

REAL (IN-PHASE)

FIG. 51'

0111201	SIGNAL MAPPING (160AM)							
SYMBOL	IN PHASE	QUADRATURE						
0	1	0						
1	0	1						
2	0	-1						
3	-1	0						

FIG. 52

	Ť.	3	0,0	-	— —	-	- 12 - 12 - 12	2	0,24	5	0,22	, ,	0,40	2	0,40	2		3	
	18	7	0.1	十		t	_	-1		$\neg$		3	_	-†	0,10	╗	0,43	7	
	5	2	0,0	+	 	t		-†	_	┪				2	_	$\neg$	0,0	7	
	5		0.3	1	11.0	+	_	_1						43			0,1	┪	
	-		7,0	-		╅		_			_		Т				3.0	$\neg$	
	-	2	Γ		0'43	╗			I		1		1	- <del>45</del>	1		H	n 61	
	-		十			_	Н		1	_	т		+-	 46	†	_	Г	_ 23 1	
E E E	-	<u> —</u>	+	, <u> </u>	-	_	-		+-	-	Т		7		1		Т		
RURST NUMBER	-	_	$\dagger$	1 /n			1				- 1		- t				1	ne3	1
	-	ے	, ,	 	6			2	; ;		3	0,20	3	D46	? (	750	,	290	
		<u>۔</u>	, ,	-	c	- 613	1	- -	;	020	3	127	?	270	2	053	3	061	;
		-		04	+-	12	1	2	3	] ] ]	9,	٦٠	5	70	F	<u></u>	3	DEO	ŝ
		,	7	03	,	-	1	Č	5		2	٦٠	33	Dis	2	1	7		3
	į	-	7	6	,	-	2	-	BI.	Dar	- €	2	, ,	D/2	246	ار	5	Oco	3
			-	-	-	å	5	D.,	5	ž	55	2		è	5	5.0	2 2	Dc.7	ر د
			0	ć	?	_	8	-	9	6	2		25	6	<del>2</del>	ح	048	ال	2
۱			ANTENNA	c	>	•	<b>→</b>	,	~	-			-		'n		م	۲	_

FIG. 53

			COLUMN NUMBER	NUMBER	
		0	1	2	က
	0	e(0)! 273	CLC 1(4)	CLC <sub>j</sub> (8)	CLC <sub>1</sub> (12)
Š	-	CLC;(1)	CLC <sub>1</sub> (5)	(6) CCC (9)	CLC <sub>1</sub> (13)
NUMBER	2	(2) (15)	כרכ יופו	CLC <sub>1</sub> (10)	CLC <sub>1</sub> (14)
		CLC 1(3)	(1) CLC 1(1)	CLC <sub>I</sub> (11)	CLC <sub>1</sub> (15)

a, i IS THE SUBBAND PAIR INDEX (0.1.2, OR 3)

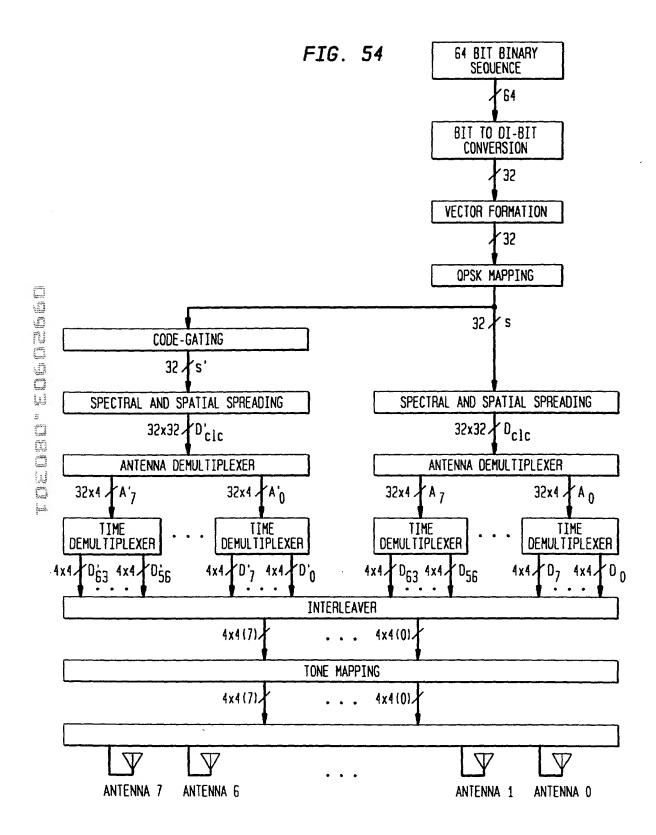


FIG. 55

		COLUMN NUMBER								
		0	1	2	3					
	0	BRC i(0)a	BRC j(4)	BRC <sub>i</sub> (8)	BAC (12)					
ROW	1	BRC i(1)	BRC <sub>1</sub> (5)	BRC <sub>i</sub> (9)	BRC <sub>1</sub> (13)					
NUMBER	5	BRC (2)	BRC (6)	BRC (10)	BRC (14)					
	3	BRC <sub>i</sub> (3)	BRC <sub>1</sub> (7)	BRC (11)	BRC <sub>i</sub> (15)					

a. i IS THE SUBBAND PAIR INDEX (0.1,2, OR 3). FOR THE BROADCAST CHANNEL ALL THE SUBBAND PAIRS WILL BE ACTIVE AT THE SAME TIME.

and the second section of the second second

FIG. 56

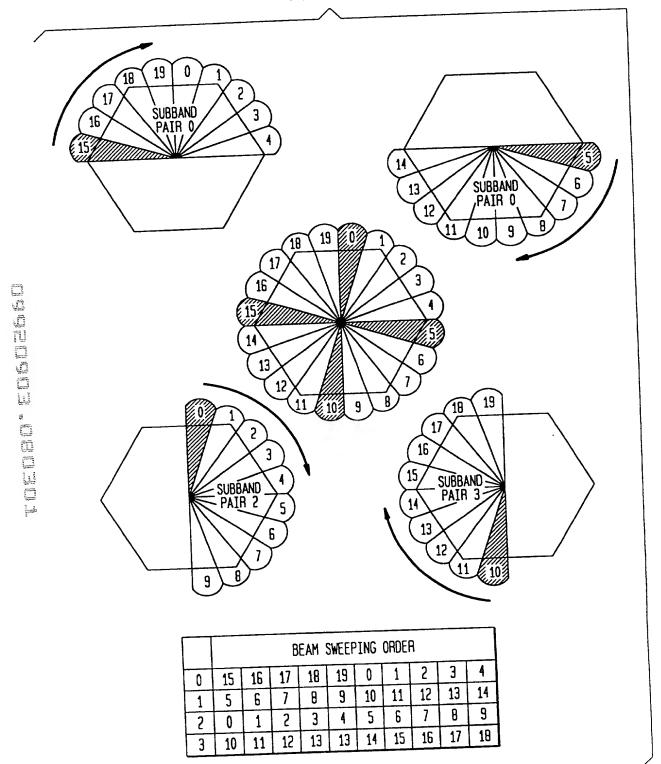
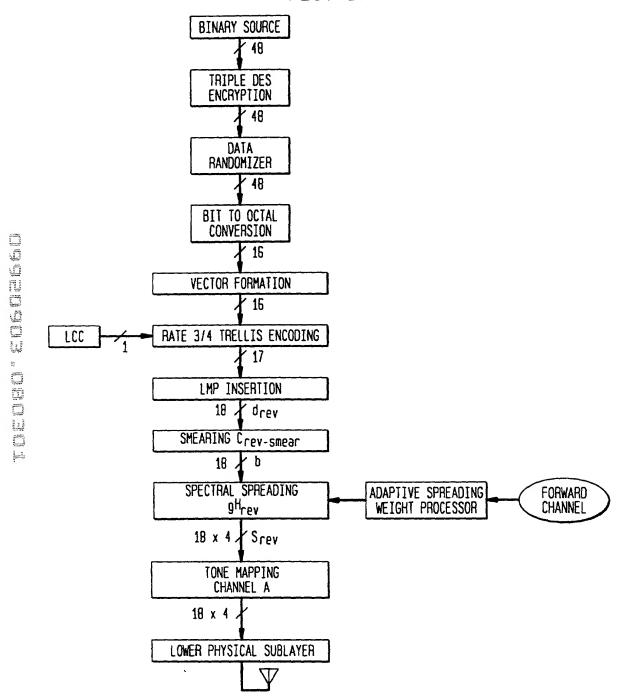
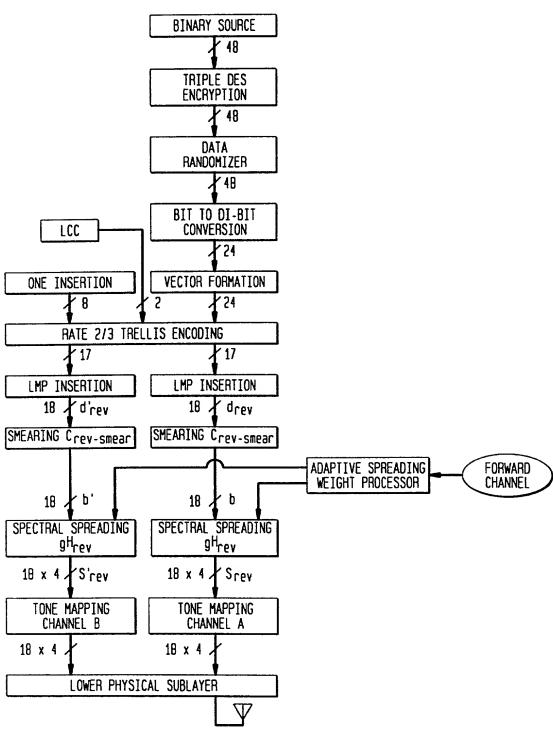


FIG. 57



0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43	44 45 46 47
TRIPLE DES ENCRYPTION	BINARY
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43	44 45 46 47
DATA RANDOMIZATION B	BINARY
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43	14 15 16 17
BIT TO SYMBOL CONVERSION B	INARY
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 0-7 INTEGER ALP	HABET
LCC SYMBOL ADDED	
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 0-7 INTEGER ALPH	HABET
TRELLIS ENCODING	
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	
PILOT SYMBOL INSERTION 160AM (16PSK) COMPLEX ALPH	HABET
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	
SMEARING 160AM (16PSK) COMPLEX ALPH	<u>HABET</u>
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 COM	<u> PLEX</u>
4 TIMES SPECTRAL SPREADING	
0 1 2 3 4 5 6 7	<u>IPLEX</u>
: : :	
60     61     62     63       64     65     66     67       68     69     70     71	

FIG. 59



## 52/116 FIG, 60

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 4	14 15 16 17
TRIPLE DES ENCRYPTION B	INARY
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 4	14454647
RANDOMIZATION B	INARY
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43	44454647
BIT TO SYMBOL CONVERSION	INARY
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 0-3 INTEGER ALP	PHABET
LCC SYMBOL INSERTION-ONE PADDING LCC ONES	
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33	
TRELLIS ENCODING <u>0-3 INTEGER ALP</u>	PHABET
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33	
<u>BOAM (BPSK) COMPLEX ALF</u>	PHABET
PILOT SYMBOL INSERTION  0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	
BOAM (BPSK) COMPLEX ALF	PHABET
SMEARING SME	i
Control of the Anna Control of the C	OMPLEX .
4 TIMES SPECTRAL SPREADING 4 TIMES SPREADING	
0 1 2 3 4 5 6 7	
1 1 4 1 4 1 1 1 W. C.	<u>OMPLEX</u>
64 65 66 67	
[68   69   70   71 ] [68	

18 x 4

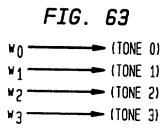
18 x 4

LOWER PHYSICAL SUBLAYER

FIG. 61 BINARY SOURCE 48 TRIPLE DES **ENCRYPTION** 48 DATA RANDOMIZER **148** LCC **VECTOR FORMATION** 148 RATE 1/2 TRELLIS ENCODING 17 17 17 LMP INSERTION LMP INSERTION LMP INSERTION **FORWARD** \* drev 1 d'rev 18 1 d.Lea CHANNEL SMEARING Crev-smear SMEARING Crev-smear SMEARING Crev-smear ADAPTIVE SPREADING WEIGHT PROCESSOR ∦ b. / b' 18 18 18 SPECTRAL SPREADING gHrev SPECTRAL SPREADING SPECTRAL SPREADING gHrev gHrev 18 x 4 / S'rev 18 x 4 ∤ Srev 18 x 4 / S'rev TONE MAPPING TONE MAPPING TONE MAPPING CHANNEL C CHANNEL B CHANNEL A

18 x 4

0 1 2 3 4 5 6 7 8 9 10 11 12 13	14 15 16 17 18 19 • • •	39 40 41 42 43 44 45 46 47	BINARY
	TRIPLE DES ENCRYPTION		
	hastartartarianiani	20140442142142142142142	DIMADV
0 1 2 3 4 5 6 7 8 9 10 11 12 13	111 12 16 17 18 12	[39]40]41]42]43]44]45]46]47]	BINARY
LCC	SYMBOL INSERTION-ONE INSER	TION	
0 1 2 13 14 15	16 17 29 30 31 32	33 46 47 48 49 50	BINARY
	TRELLIS ENCODING		
0 1 2 14 15 16 17	18 19 31 32 33 34 35	36 48 49 50	
· ·	PILOT SYMBOL INSERTION	OPSK COMPLEX	ALPHABET
0 1 2 14 15 16 17	0 1 2 14 15 16 17	0 1 2 3 15 16 17	
SMEARING	SMEARING	<u>OPSK COMPLEX</u> SMEARING	<u>ALPHABET</u>
0 1 2 [11 15 16 17	0 1 2 14 15 16 17	0 1 2 3	COMPLEX
4 TIMES SPREADING	4 TIMES SPREADING	4 TIMES SPREADING	
0 1 2 3 4 5 6 7	0 1 2 3 4 5 6 7	0 1 2 3 4 5 6 7	COMPLEX
: : : :		• • • •	00111 2277
60       61       62       63         64       65       66       67         68       69       70       71	60 61 62 63 64 65 66 67 68 69 70 71	60     61     62     63       64     65     66     67       68     59     70     71	
PARTITION A	PARTITION B	PARTITION A	



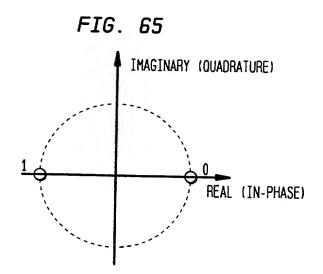
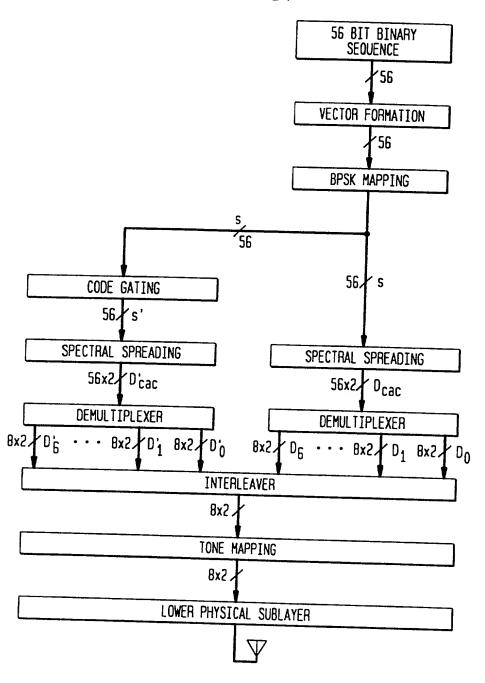


FIG. 64



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	SIGNAL	MAPPING
BIT	IN PHASE	QUADRATURE
0	1	0
1	-1	0

FIG. 66

						В	JRST	NUMBE	R					
	0	1	5	3	4	5	6	7	В	9	10	11	12	13
MATRIX	D <sub>0</sub>	01	D2	03	04	05	08	D,B	0;	D' <sub>4</sub>	0;	ΔŞ	0;	0,

FIG. 67

		COLUMN NUMBER		
		0	1	
ROW NUMBER	0	CAC <sub>ij</sub> (0) <sup>a</sup>	CAC <sub>ij</sub> (8)	
	1	CAC <sub>ij</sub> (1)	CAC <sub>ij</sub> (9)	
	2	CAC 1 1 (2)	CAC <sub>ij</sub> (10)	
	3	CAC <sub>ij</sub> (3)	CAC <sub>ij</sub> (11)	
	4	CAC <sub>ij</sub> (4)	CAC <sub>ij</sub> (12)	
	5	CAC <sub>ij</sub> (5)	CAC <sub>ij</sub> (13)	
	6	CAC ij (6)	CAC <sub>ij</sub> (14)	
	7	CAC <sub>ij</sub> (7)	CAC <sub>ij</sub> (15)	

a.i IS THE SUBBAND PAIR INDEX (0.1.2.0R 3) AND i IS THE CAC ID (0 OR 1)

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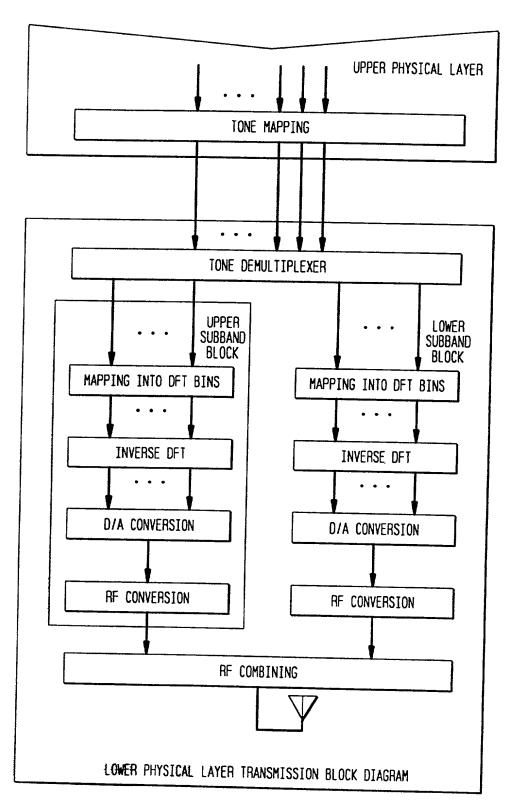
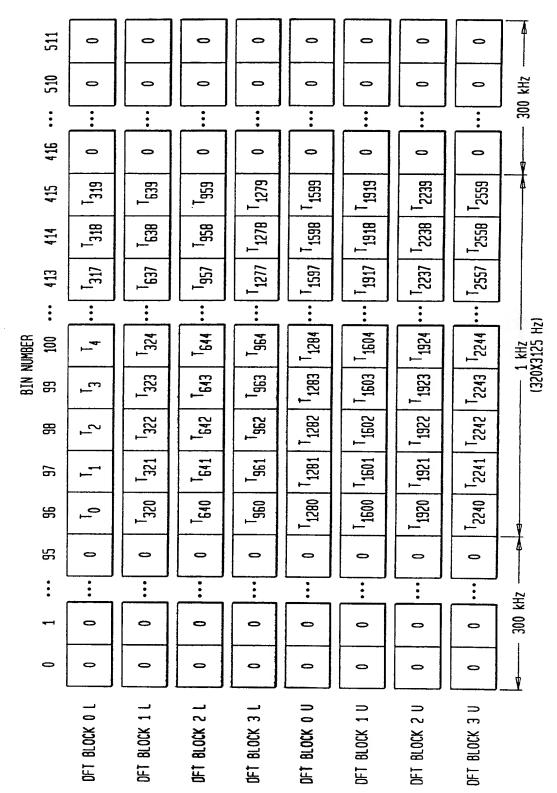


FIG. 69

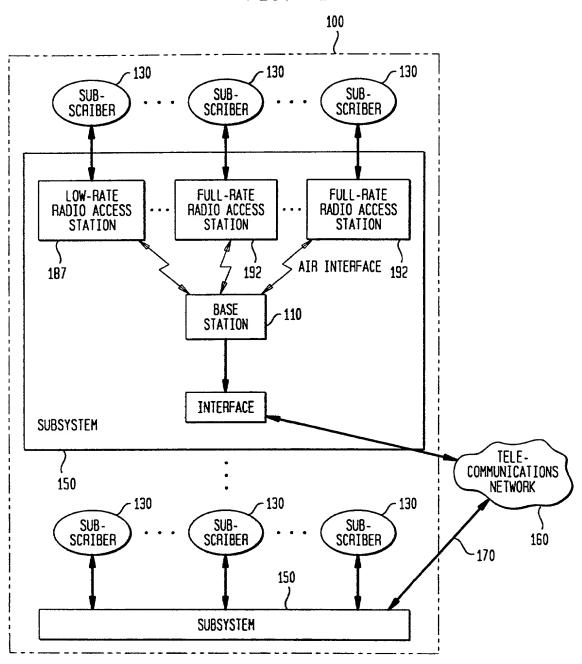
			BIN NUMBER					
			BIN 0 TO BIN 95	BIN 96 TO BIN 415	BIN 416 TO BIN 511			
DFT PAIR 2	٥	LOWER		T <sub>0</sub> T0 T <sub>319</sub>				
	U	UPPER		T <sub>1280</sub> TO T <sub>1599</sub>				
	4	LOWER	UNUSED	<sup>T</sup> 320 <sup>TO T</sup> 639	unused			
	ı	UPPER		1600 TO T1919				
	_ j	LOWER	UNUSED	T <sub>640</sub> TO T <sub>959</sub>				
	۲	UPPER		T <sub>1920</sub> TO T <sub>2239</sub>				
3	2	LOWER		T <sub>960</sub> TO T <sub>1279</sub>				
	J	UPPER		T <sub>2240</sub> TO T <sub>2559</sub>				

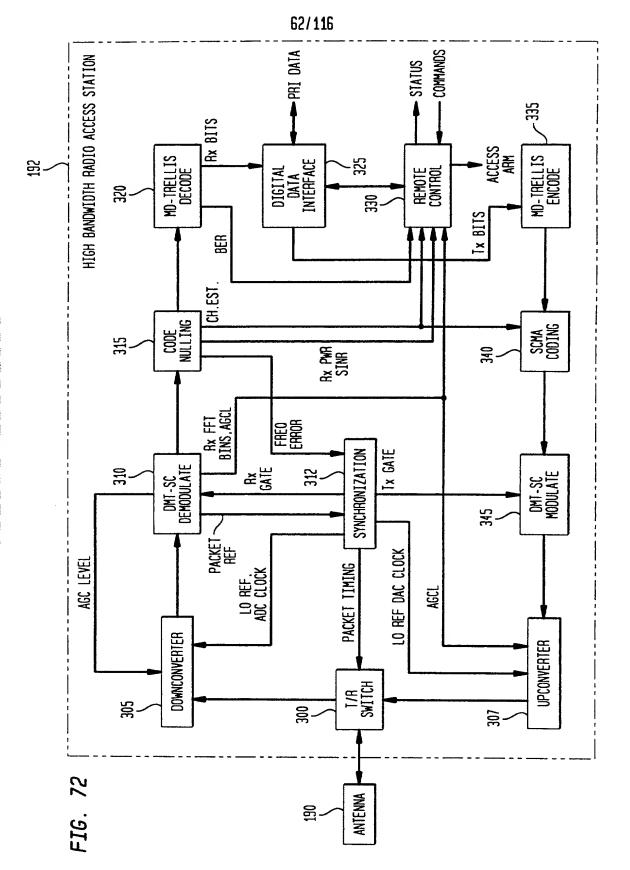


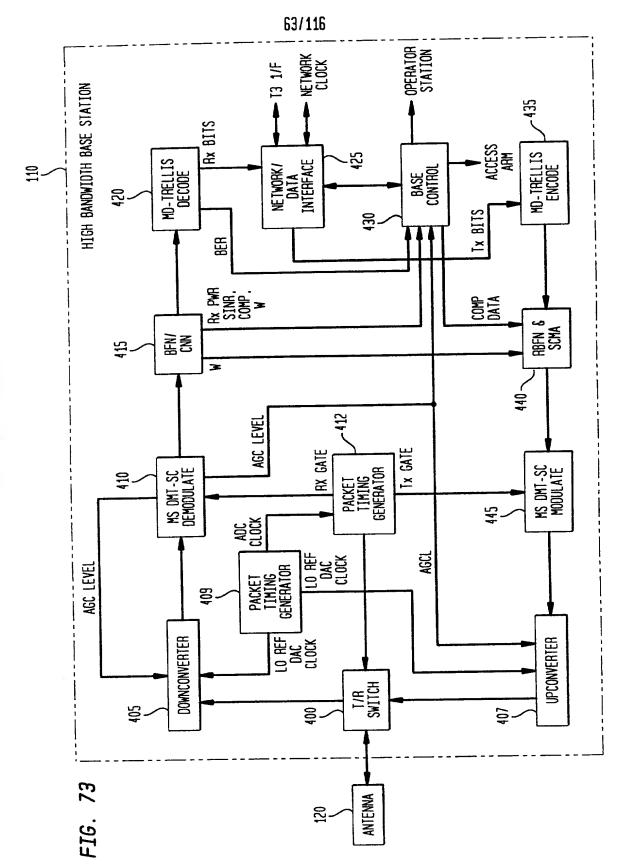


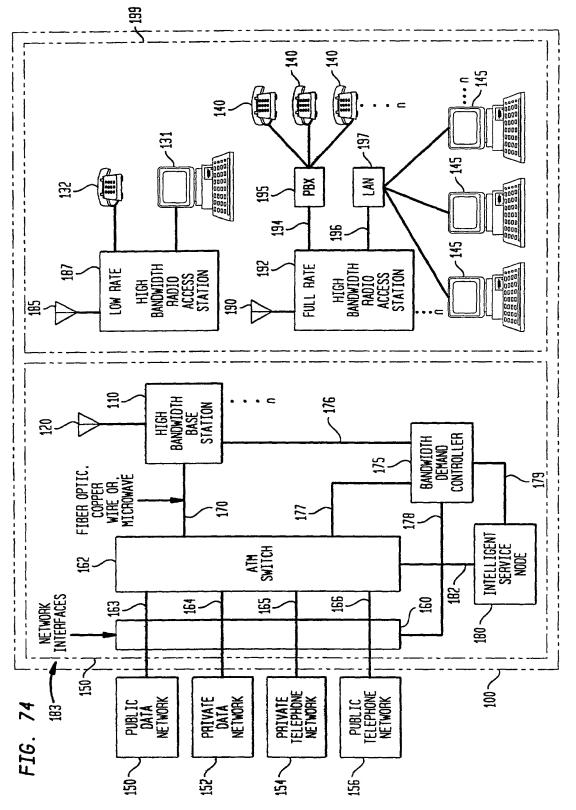
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FIG. 71









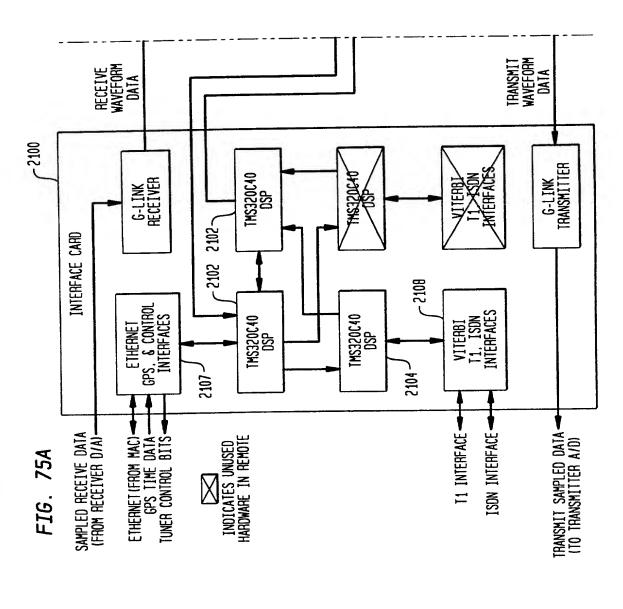
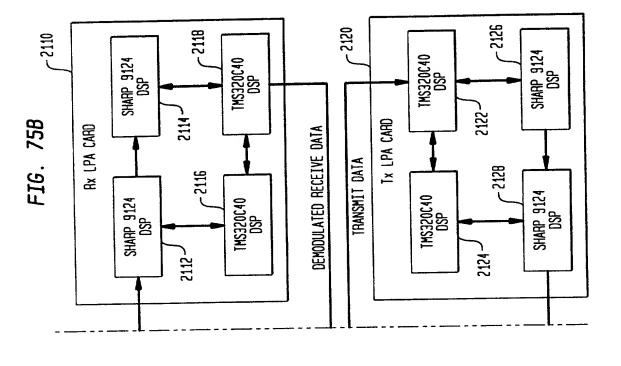
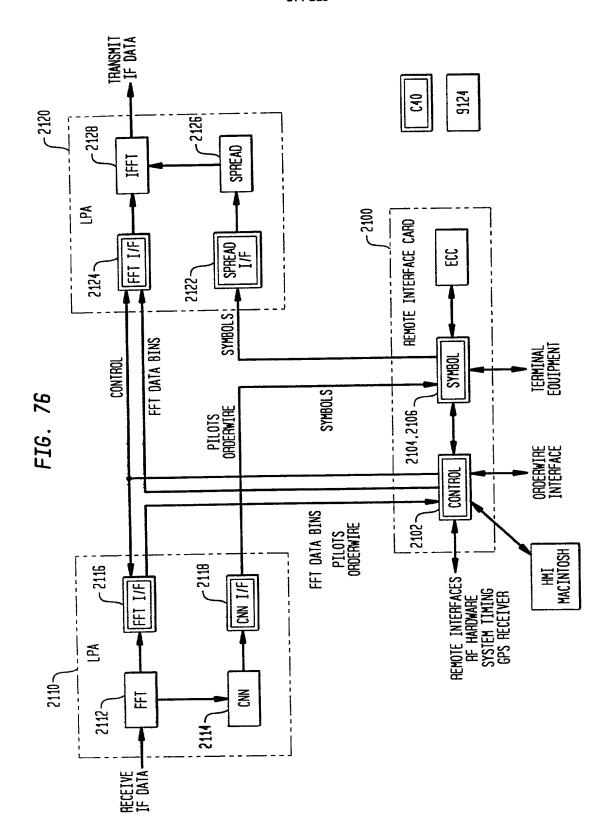


FIG. 75

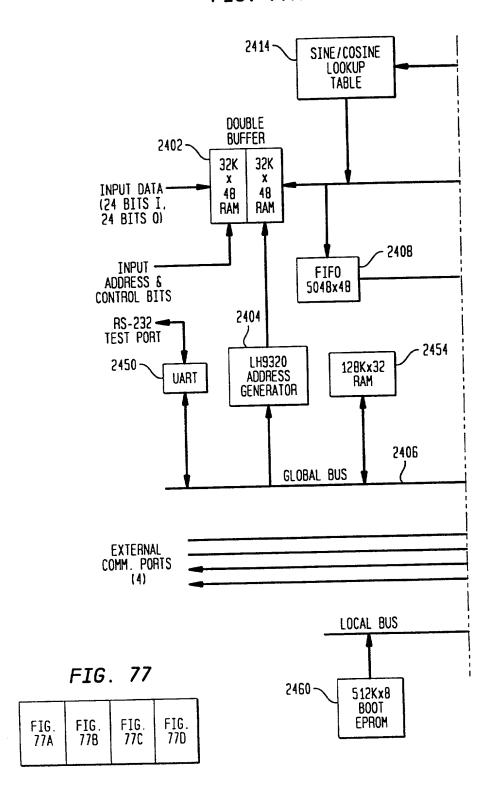
FIG. 75A



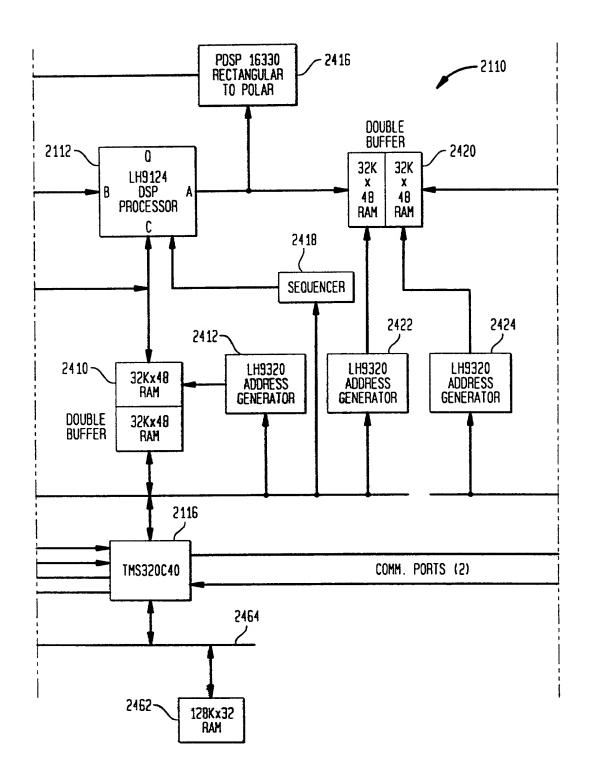


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FIG. 77A



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FIG. 77C

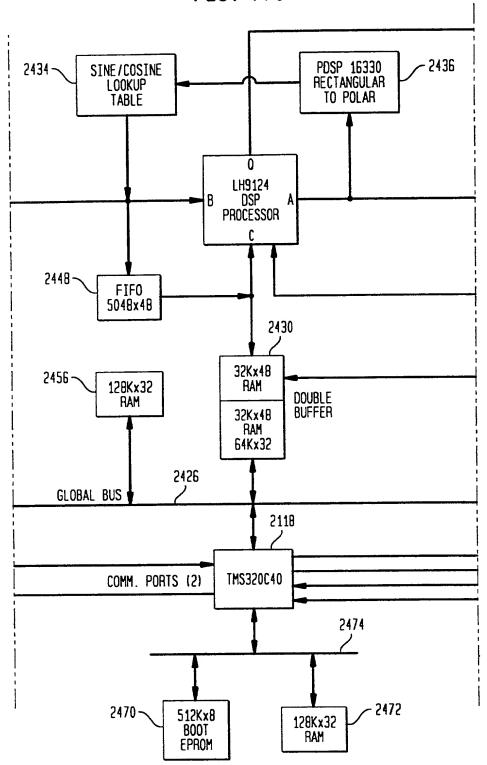
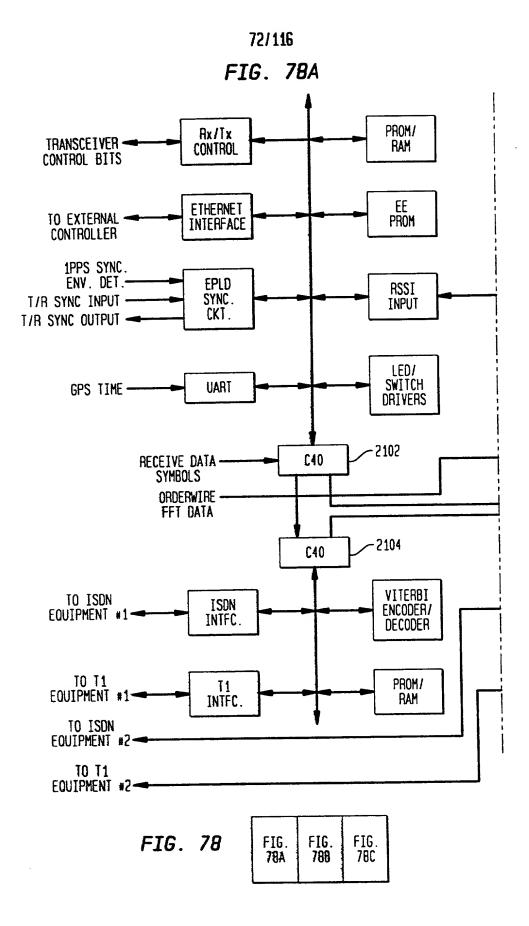
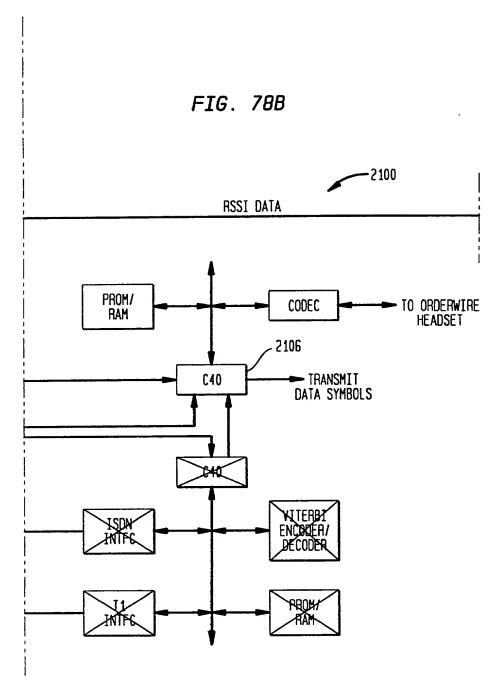


FIG. 77D OUTPUT DATA (24 BITS I. 24 BITS O) 2440 32K X OUTPUT
ADDRESS &
CONTROL BITS 48 RAM 2444 2438 LH9320 ADDRESS GENERATOR SEQUENCER 2452 2432 -LH9320 ADDRESS GENERATOR LH9320 ADDRESS GENERATOR RS-232 TEST PORT UART 2442 GLOBAL BUS EXTERNAL COMM. PORTS (4)

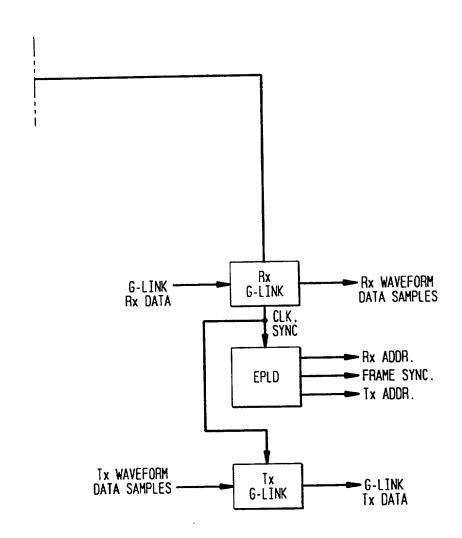
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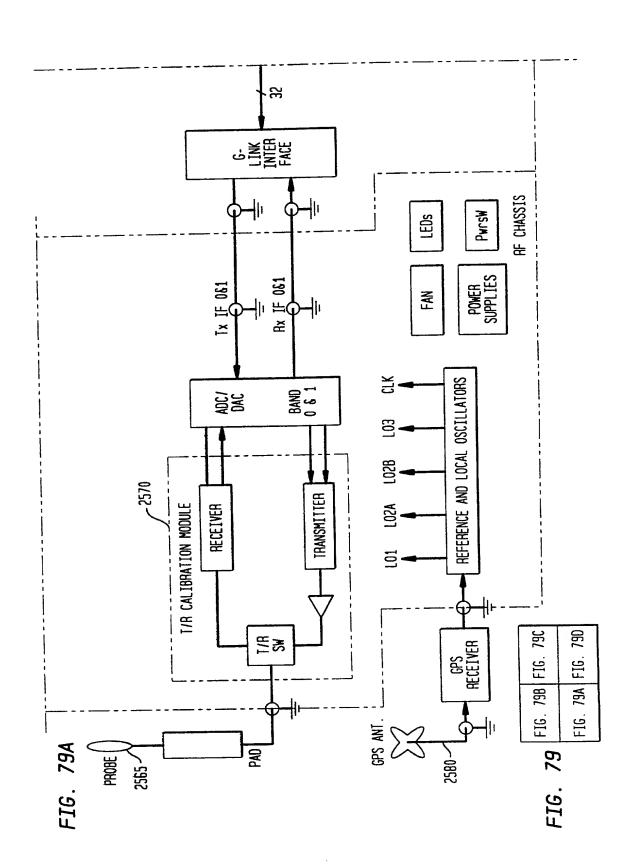


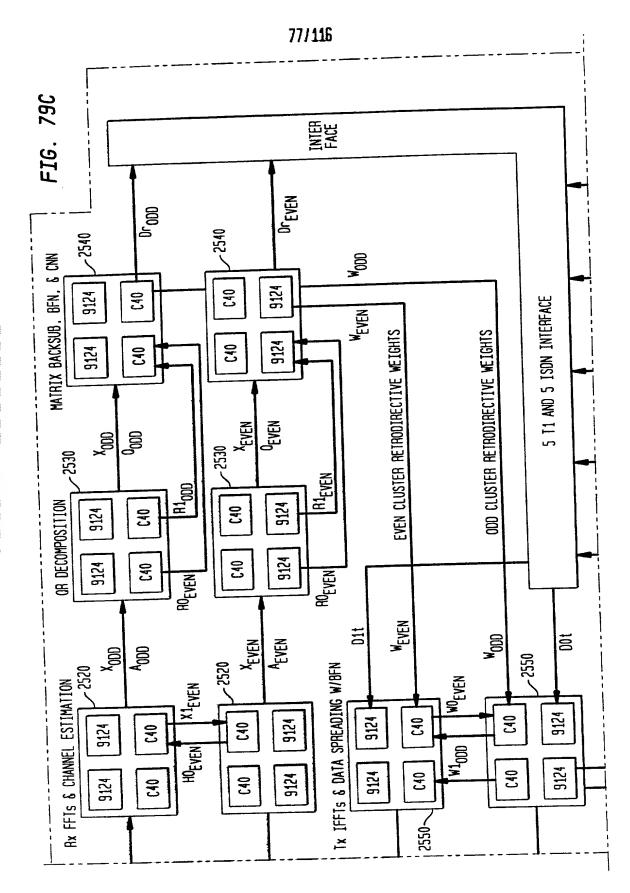


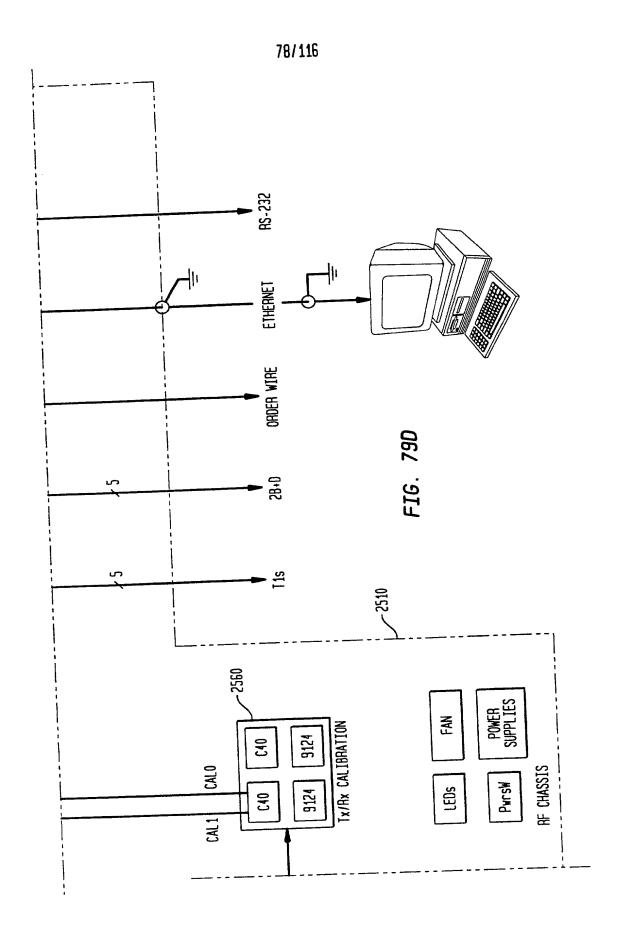
INDICATES UNUSED HARDWARE IN REMOTE

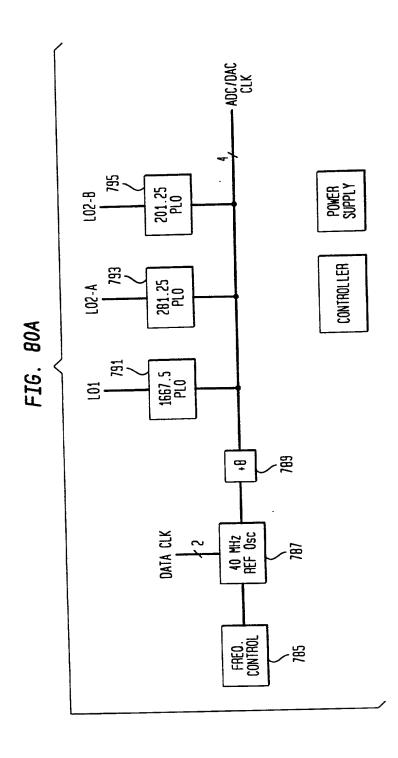
FIG. 78C

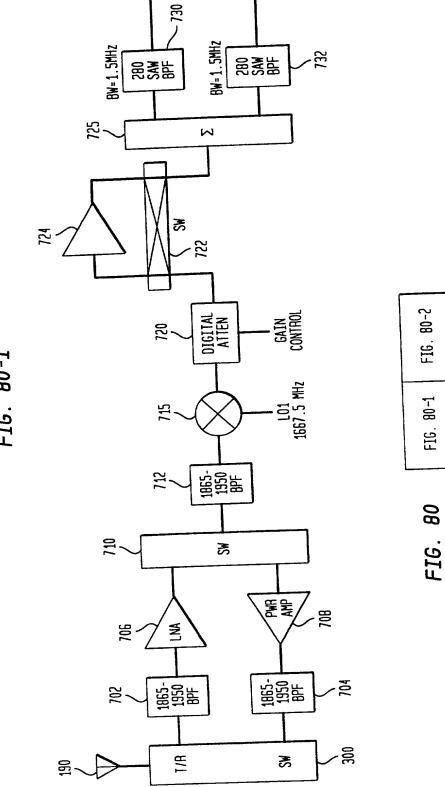






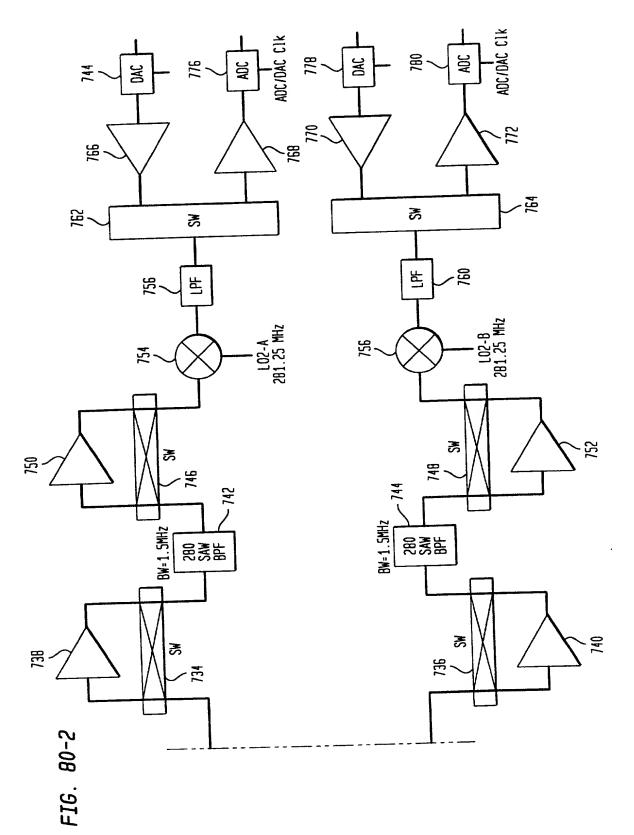






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FIG. 80-1



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FIG. 81

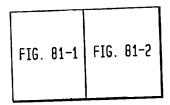
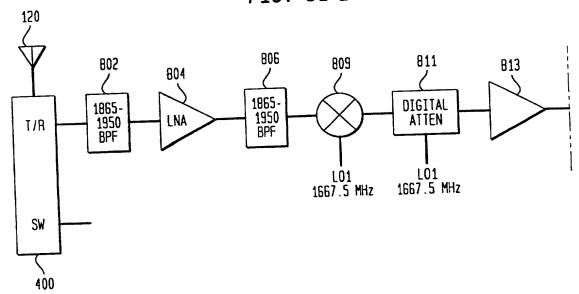
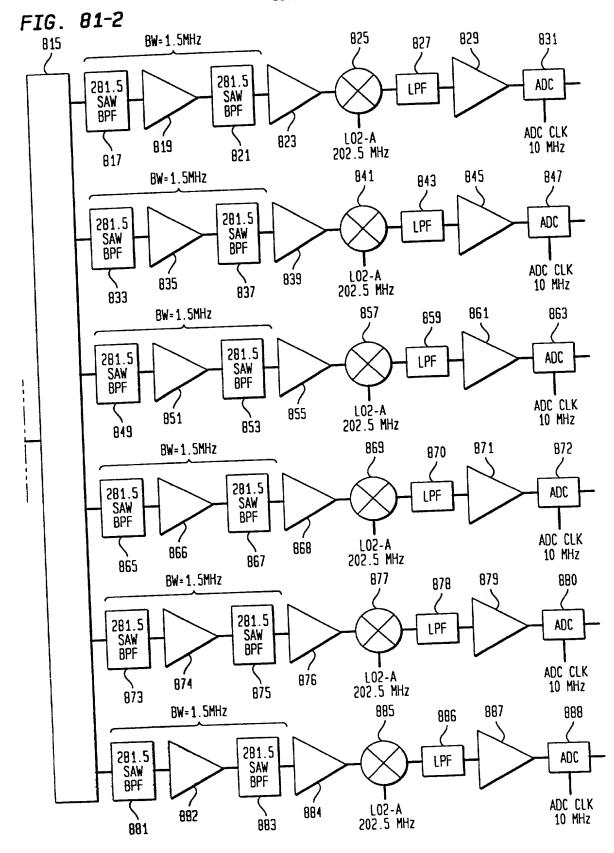
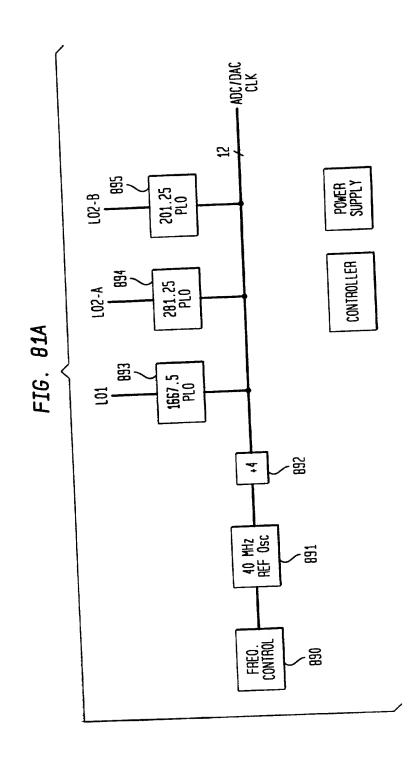


FIG. 81-1







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FIG. 82

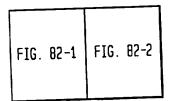
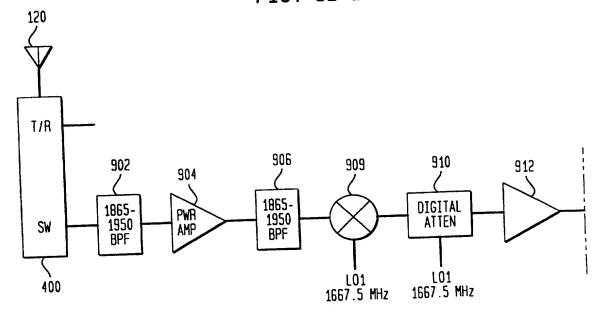
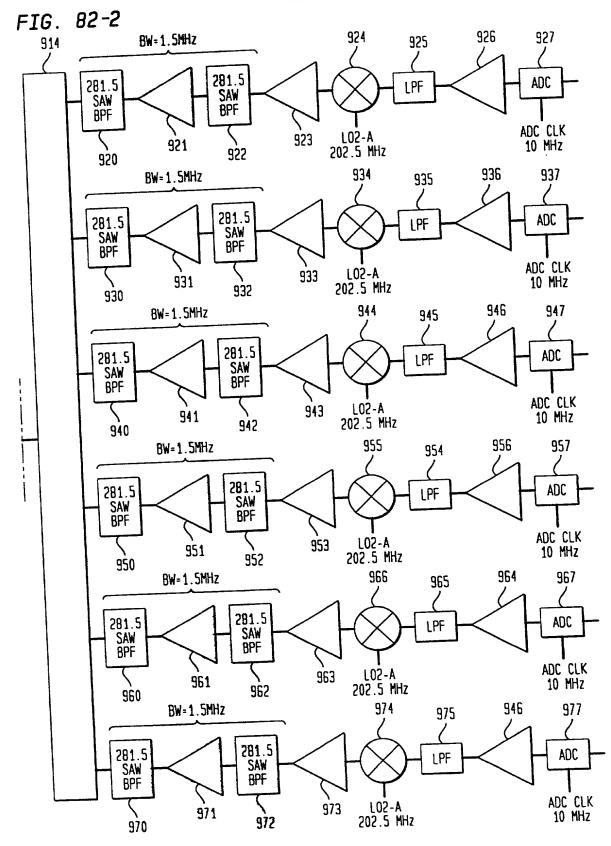


FIG. 82-1





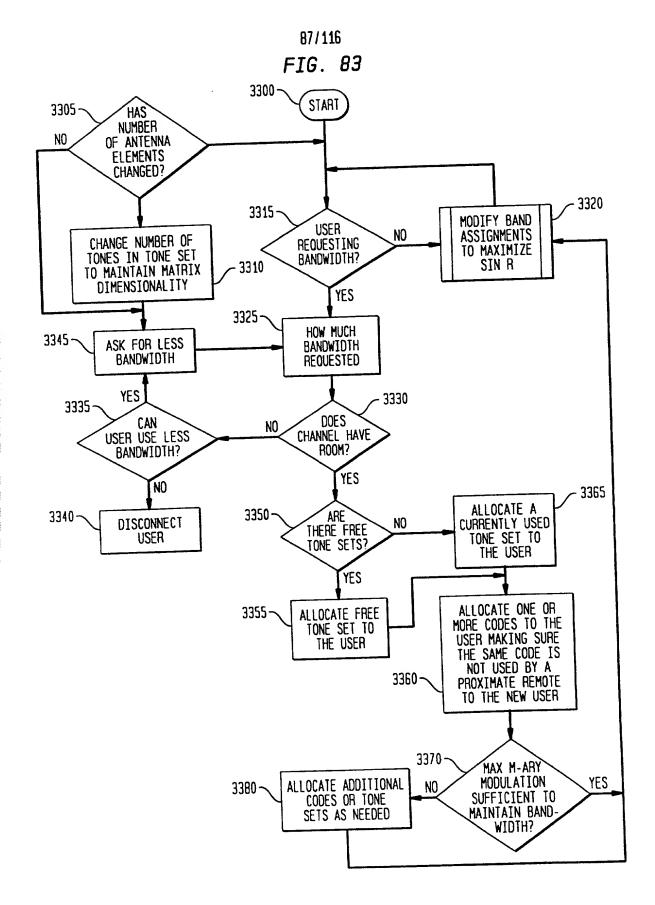


FIG. 84A

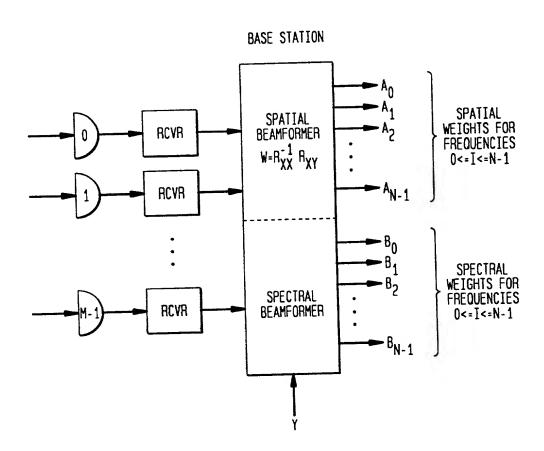
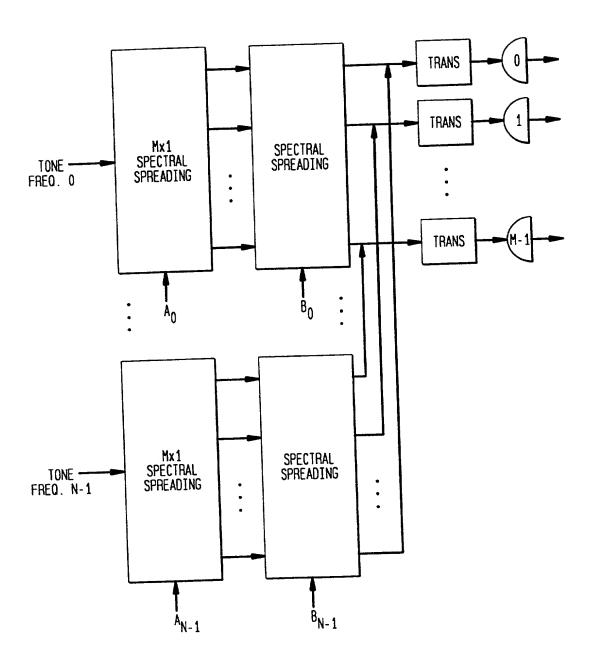
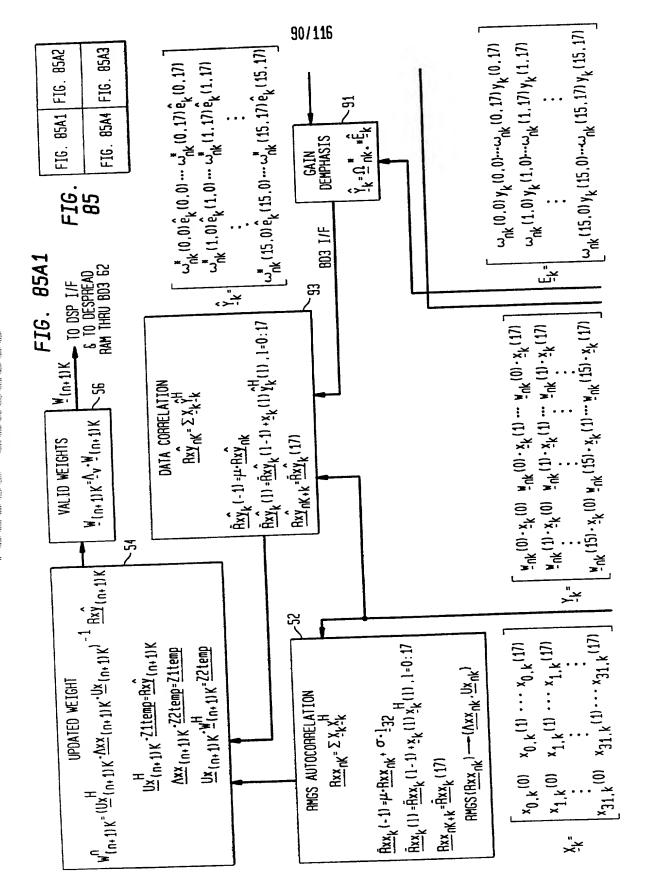
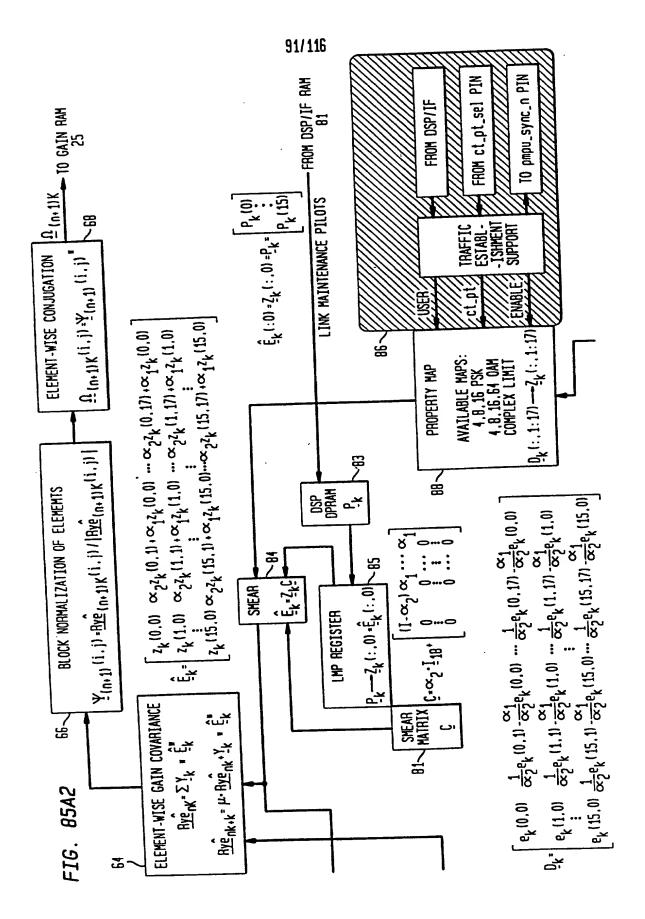
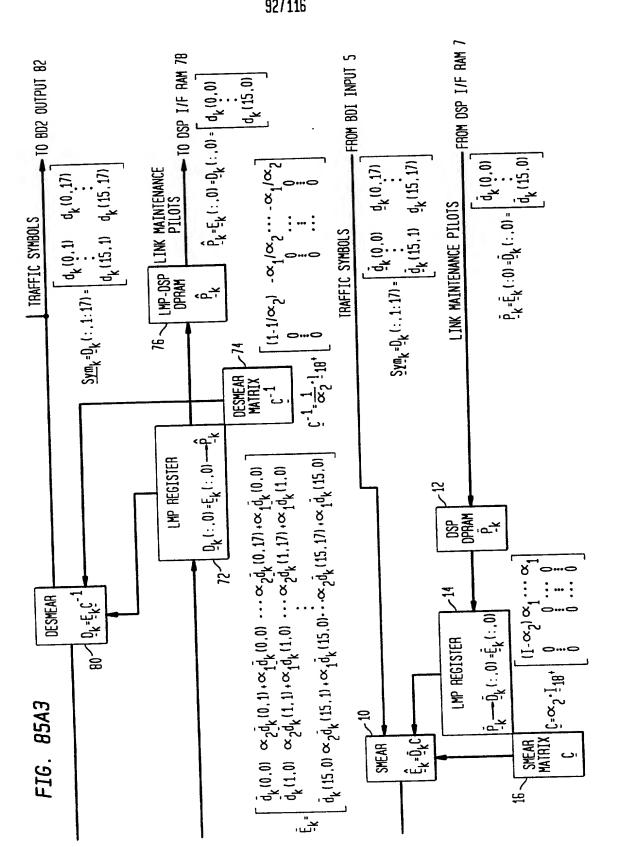


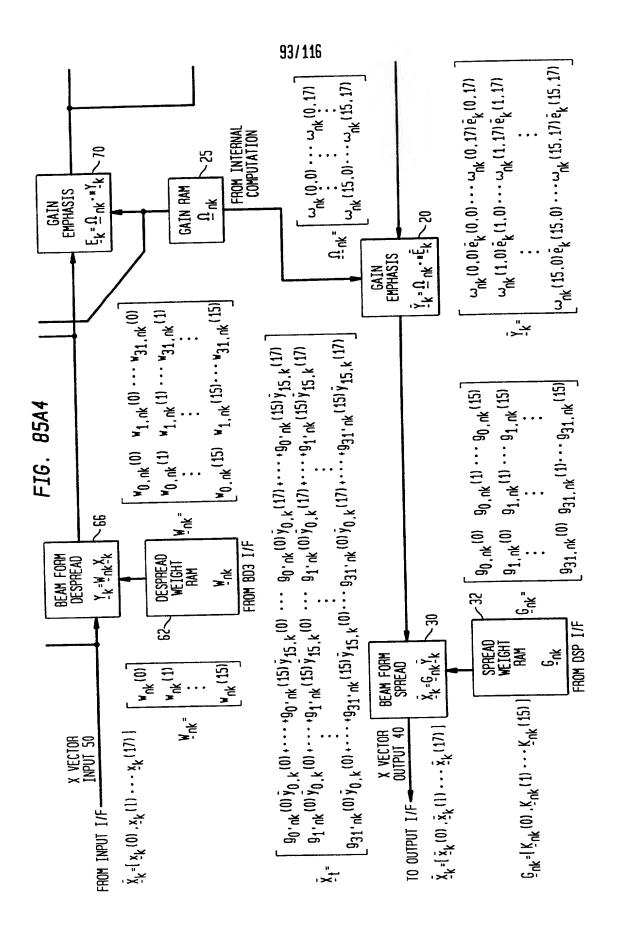
FIG. 84B

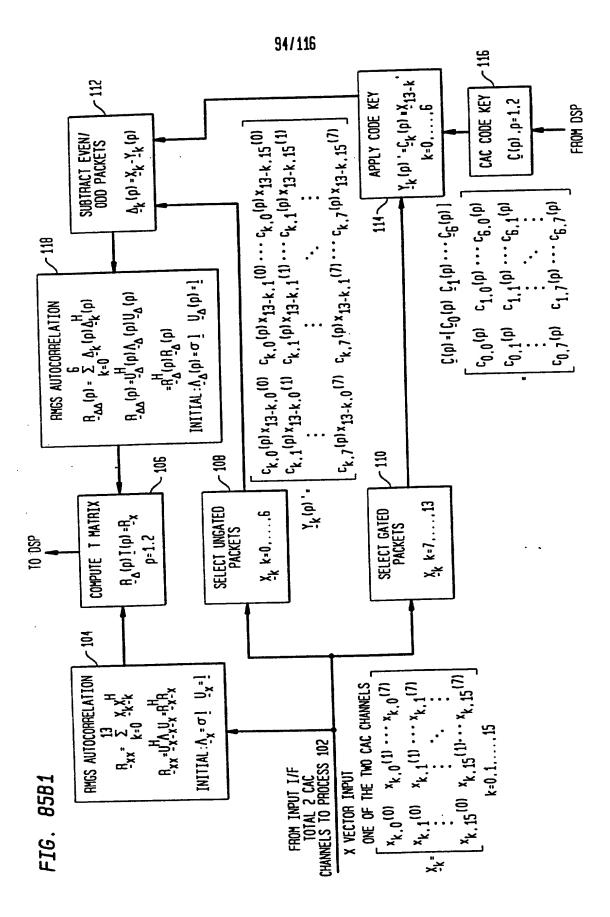


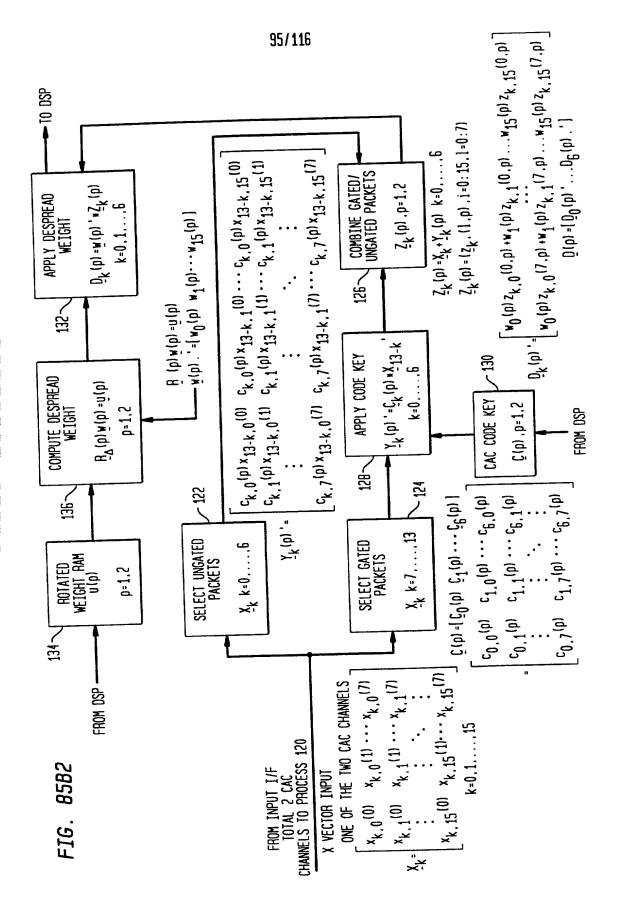












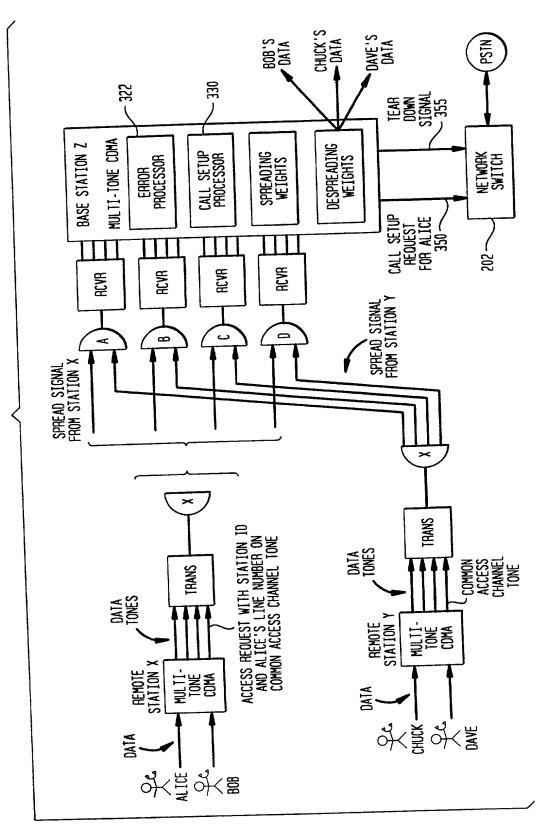
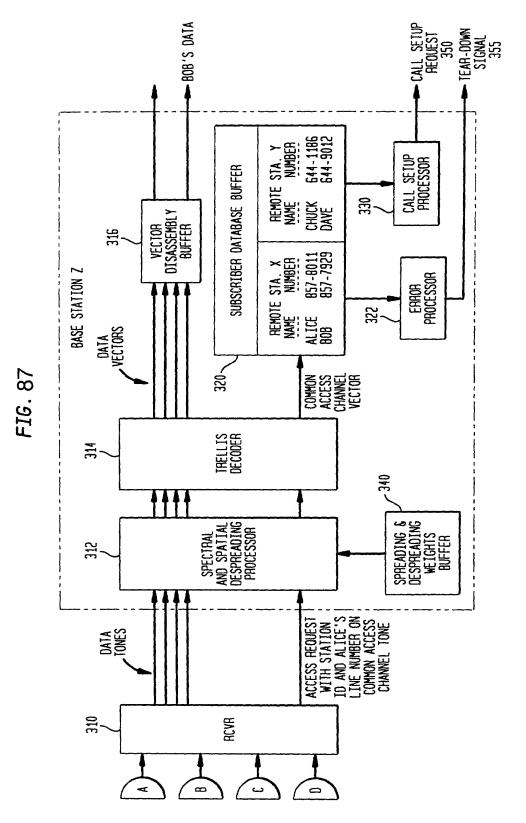
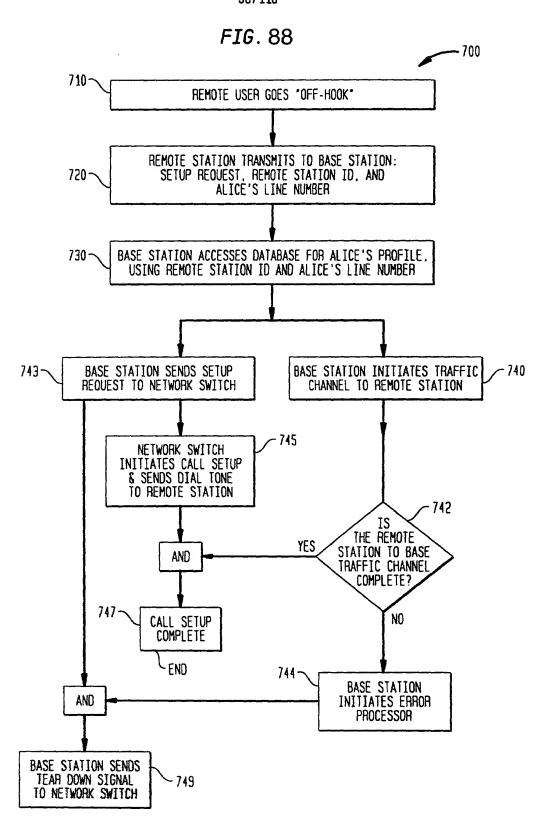
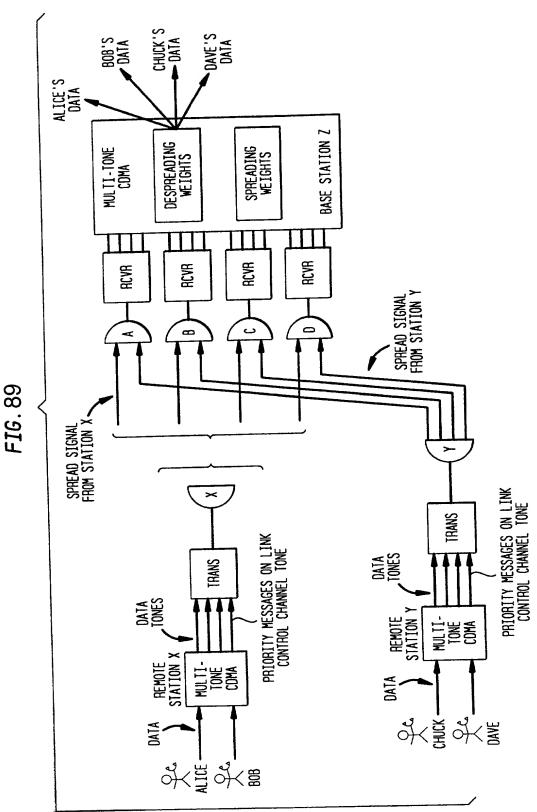


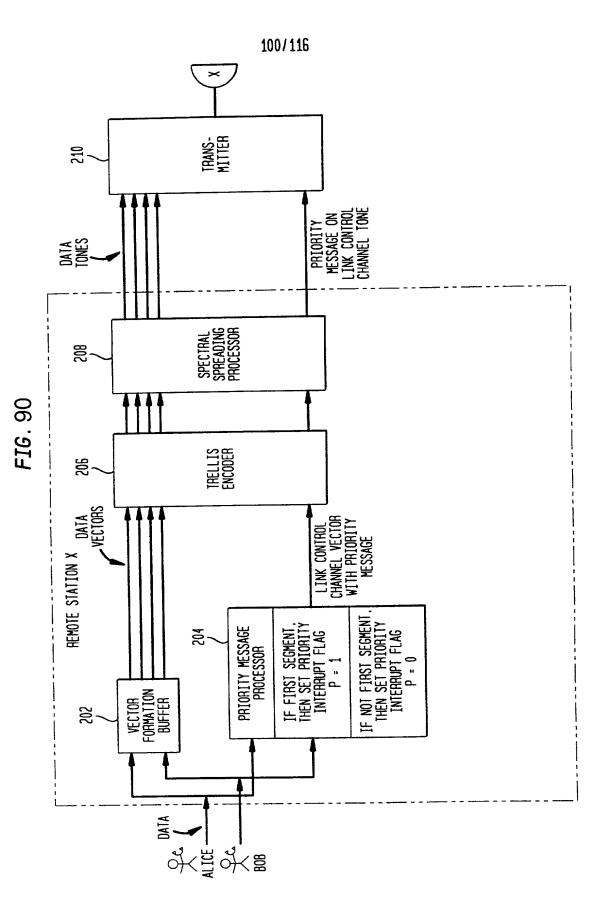
FIG. 86

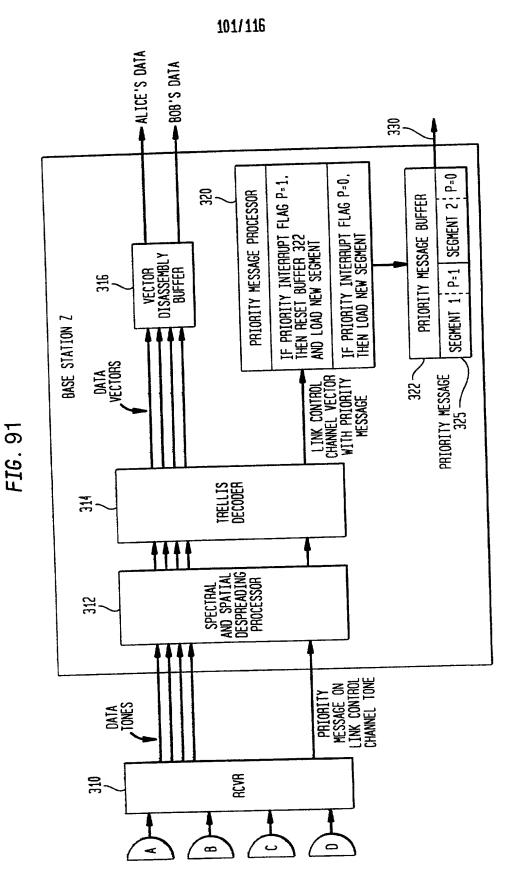


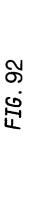
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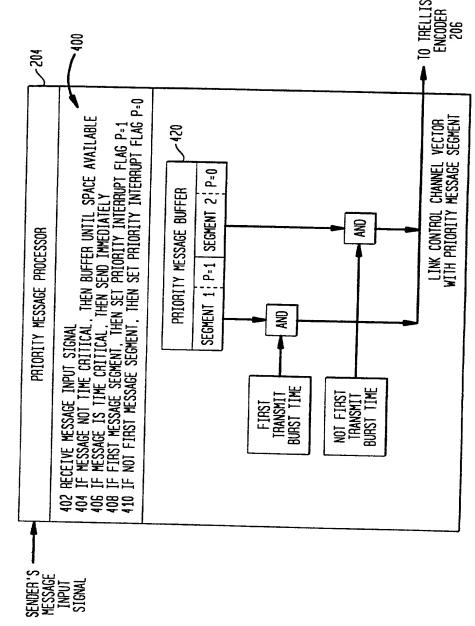












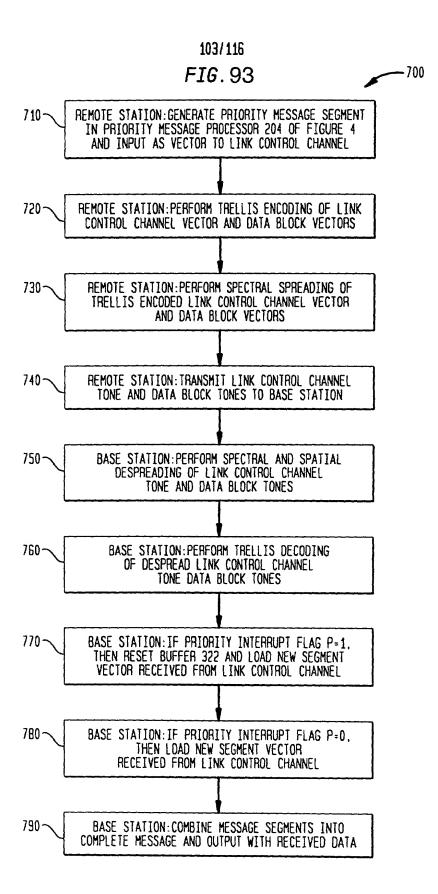
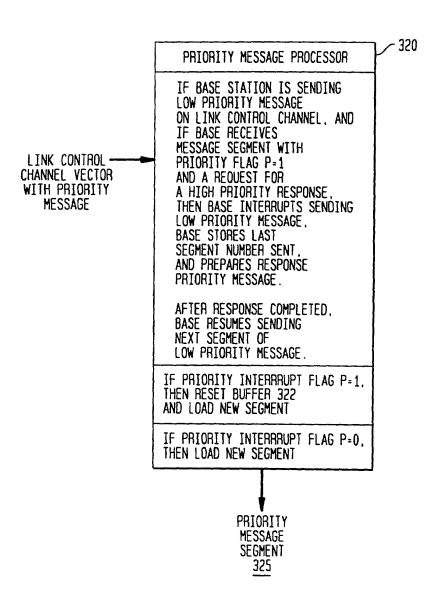
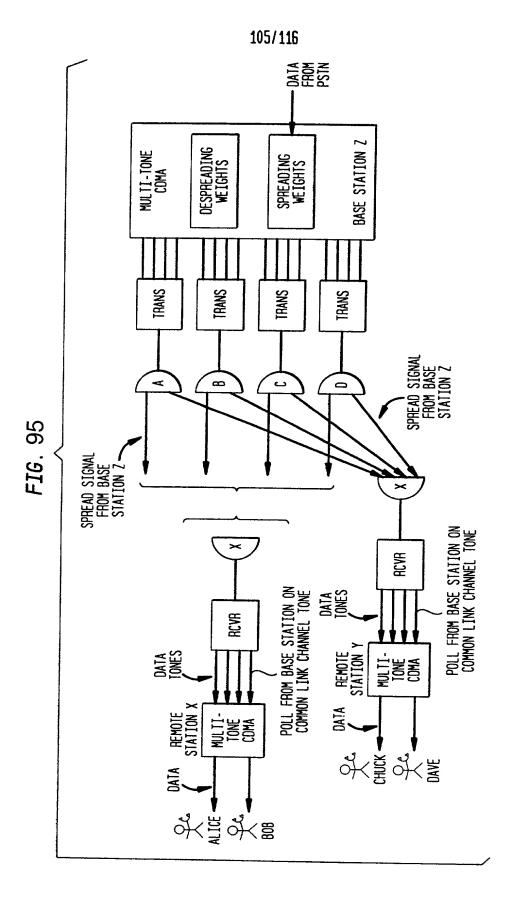
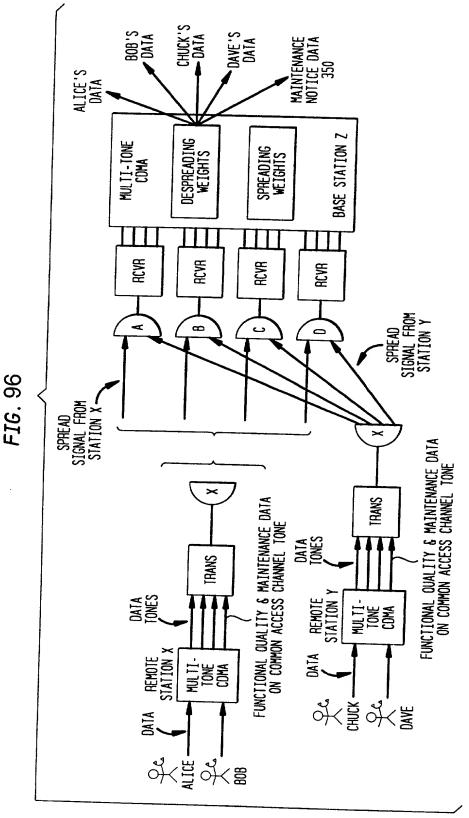
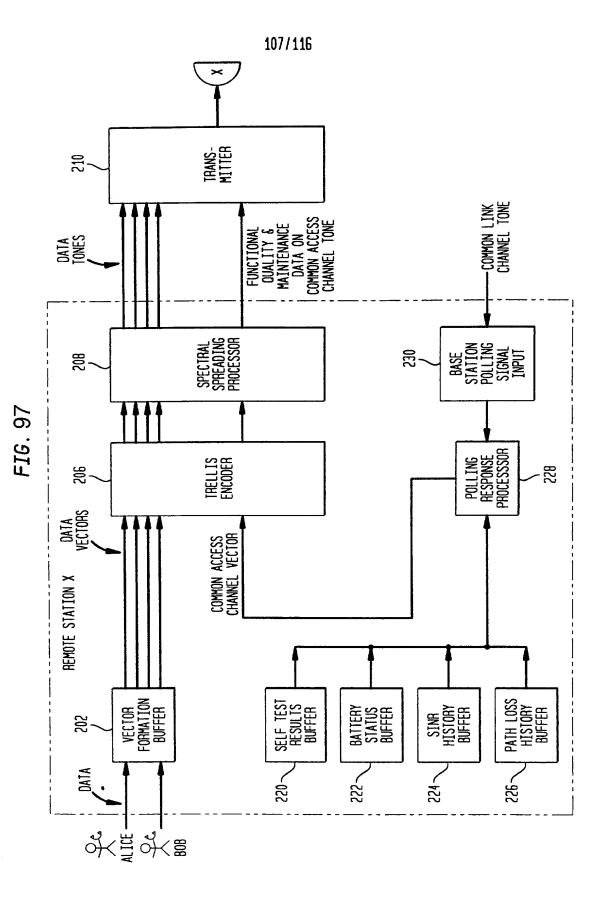


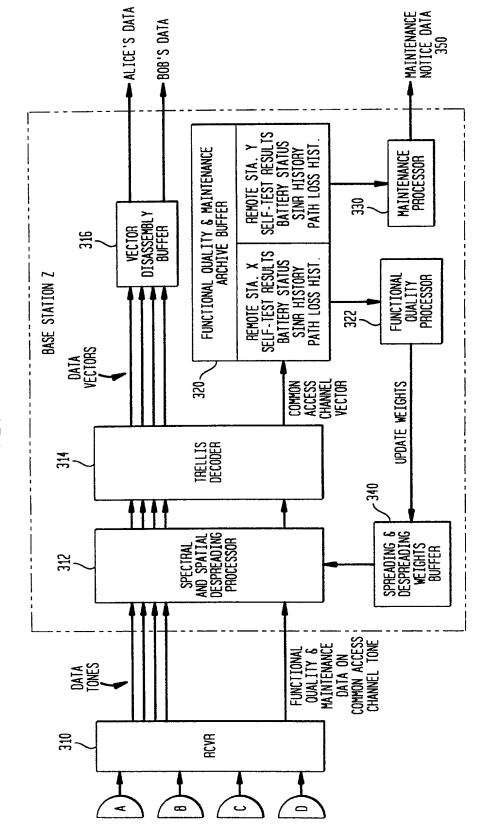
FIG. 94





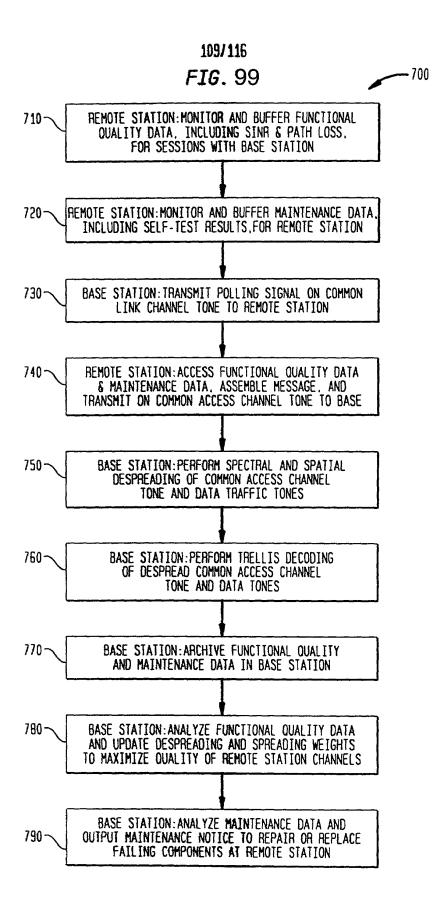


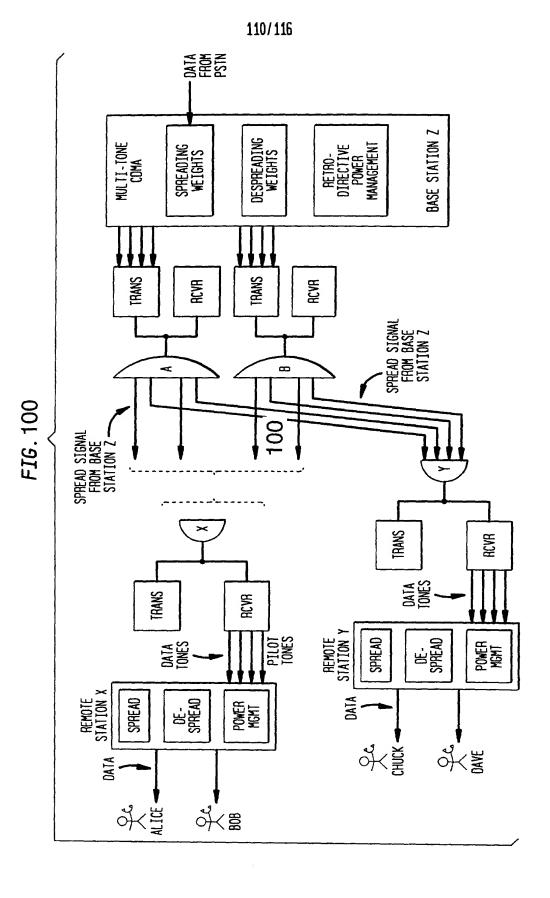




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FIG. 98





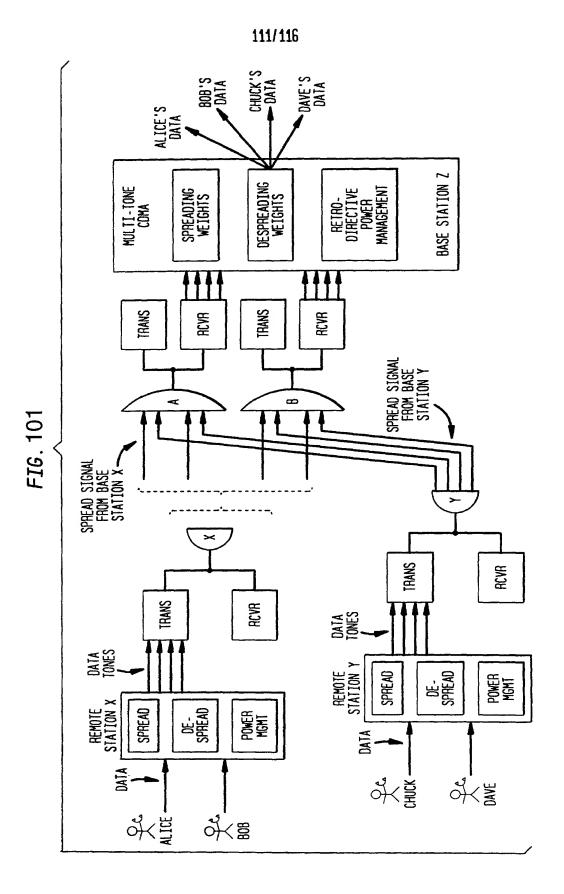


FIG. 102

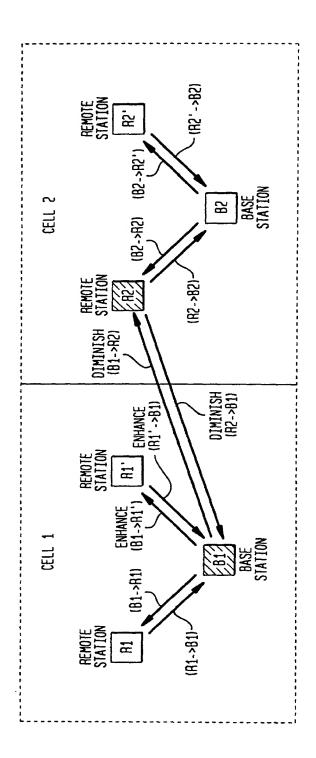
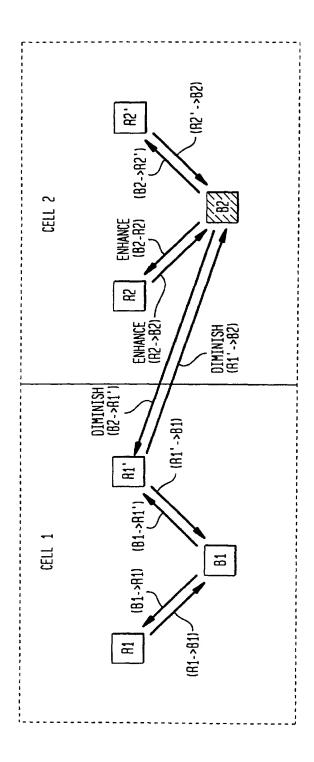
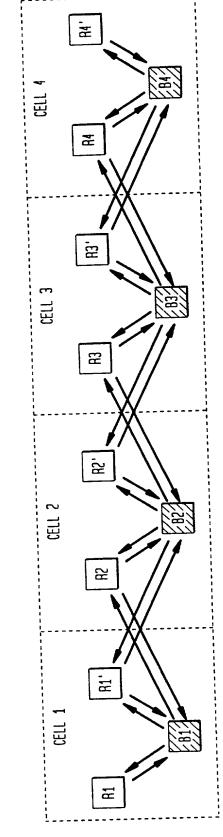


FIG. 103





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FIG. 104

